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# User-based website design in tourism with a special focus on web 2.0 websites

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August 2010

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Information systems literature calls for websites providing a site architecture that is as close as possible to the mental model of the user. To assure that users will be satisfied, website designers need to be aware that users interpret elements offered on a website based on their physiological and psychological factors. Creating a compelling online experience for diverse groups of e-customers is a challenge and of utmost importance for a website's success. However, in the field of tourism literature that discriminates between requirements based on motivational or cognitive aspects of certain user-groups is scarce. Therefore, the hypothesis examined in this dissertation is that there are differences between a priori defined user-groups regarding their satisfaction with web 2.0 websites. Further, this research is aimed at not only taking the demand side into account but also the supply side by asking whether the supply side is aware of the increasing importance of web 2.0 contents and its potentials for information presentation and market research. To bring the project into a coherent framework three more aspects are tackled. First, due to the fact that there is no existing typology for travel-blogs this dissertation tries to fill this gap by means of a qualitative approach. Second, an alternative, more parsimonious measurement approach for website performance is proposed. Finally, a study on measuring emotional mental models, a topic which seems to be neglected in information systems literature as well as in the field of tourism, is included. In order to investigate all these issues nine empirical studies are conducted. The approaches used include online surveys, content analysis, and quasi-experimental design. For data analysis methods such as Partial Least Squares Structural Equation Modeling, Covariance Based Structural Equation Modeling, and Artificial Neural Network Analysis are applied. The results indicate that there are differences between a priori defined user groups regarding their satisfaction with web 2.0 websites. For instance, the influence of motivational factors on the importance of website features differs between travelers who seek relaxation and those who seek adventure. Moreover, the main drivers for value and satisfaction for a goal-directed search are content quality followed by usefulness. These effects are attenuated for the experiential search. The study focusing on communication modes suggests that for verbalizers content is most essential while for visualizers the most important aspect is design. A further study, investigating the influence of hotel guest reviews on customer hotel preferences, reveals that in certain instances the subjects' willingness to pay is significantly higher than their reference price. Additionally, the findings indicate that people who read consumer reviews online do not belong to only one homogeneous group but perceive the importance of review categories differently. Pertaining to the supply side findings show that managers in Austria, Germany, and Switzerland assess user generated content as highly

important and that managers have a rather positive attitude towards negative reviews. However, there is evidence that hotels and museums are not seizing opportunities the Internet provides in terms of information presentation. Concerning the formative measurement developed for website performance cross validation proved that the index works well. The last study sheds light on measuring emotional mental models and gives insights into changes of users' emotional mental models before and after their visitation of a virtual world. The final chapter "Discussion and conclusions" critically discusses the results of the nine studies from a theoretical point of view, debates the approaches used and methods applied, and gives managerial implications and suggestions for future research.

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## Zusammenfassung

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Die Forschung auf dem Gebiet der Informationssysteme zeigt, dass die Webseiten-Architektur dem mentalen Modell der Nutzer so ähnlich wie möglich sein soll. Zweifellos stellt die Entwicklung einer, für die jeweilige Zielgruppe, ansprechende Internetseite eine grosse Herausforderung dar. Es muss aber bedacht werden, dass die Zufriedenheit der Nutzer massgeblich zum Erfolg einer Webseite beiträgt. Um Nutzer zufrieden zu stellen, müssen sich Webseiten-Designer bewusst sein, dass die auf der Webseite angebotenen Elemente sowohl aus physiologischer als auch aus psychologischer Sicht von den Kunden interpretiert werden. Im Bereich des Tourismus gibt es kaum Studien, welche die Anforderung der Nutzer in Bezug auf kognitive und motivierende Aspekte untersuchen. Daher wird in dieser Dissertation die Forschungsfrage, dass es Unterschiede zwischen a-priori definierten Nutzer-Gruppen bezüglich deren Zufriedenheit mit Web 2.0 Webseiten gibt, untersucht. Neben der Nachfrageseite werden zudem spezifische Aspekte der Angebotsseite unter die Lupe genommen. Konkret wird erhoben, ob die Anbieter die Wichtigkeit von Web 2.0 Inhalten wahrnehmen, ob sie Möglichkeiten nutzen, die das Internet zur kreativen Präsentation von Informationen bietet, und ob online Marktforschungsmöglichkeiten ausgeschöpft werden. Um dem Projekt einen entsprechenden Rahmen zu verleihen, werden drei weitere Aspekte behandelt. Erstens wird die Lücke einer fehlenden Typologie für Reiseblogs geschlossen. Zweitens wird ein alternatives Instrument zur Erfolgsmessung von Webseiten vorgestellt. Schliesslich wird ein Kapitel dem Thema "emotionale mentale Modelle" gewidmet, einem Thema welches sowohl in der Informationssystem-Forschung als auch in der Tourismus-Forschung vernachlässigt scheint. Um all diese Aspekte abzudecken, werden neun empirische Studien durchgeführt, wobei Daten mittels Online-Befragungen, Inhaltsanalyse und quasi-experimentellem Design erhoben werden. Zur Datenanalyse werden Methoden wie etwa Partial Least Square Strukturgleichungsmodelle, Kovarianzbasierte Strukturgleichungsmodelle und Artificial Neural Network Analysen verwendet. Die Ergebnisse zeigen, dass es Unterschiede zwischen a-priori definierten Nutzergruppen gibt, was ihre Zufriedenheit mit Web 2.0 Webseiten betrifft. Beispielsweise wird die unterschiedliche Wichtigkeit des Einflusses von Faktoren, welche zum Lesen von Blogs motivieren, bei Abenteuer- und Erholungsurlaubern aufgezeigt. Ausserdem wird empirisch nachgewiesen, dass bei einer zielgerichteten Suche die Qualität und der Nutzen des Inhalts am meisten zur Zufriedenheit beitragen, während diese Aspekte bei einer Suche ohne spezielles Ziel weniger wichtig sind. Eine Studie zum Thema Kommunikationsmodi zeigt, dass für die Gruppe "Verbalizer" Inhaltsqualität am wichtigsten ist; für die Gruppe "Visualizer" hingegen trägt das Design der Website

am stärksten zur Zufriedenheit bei. Im Zusammenhang mit dem Einfluss von Hotel-Reviews auf Kundenpräferenzen kann gezeigt werden, dass in gewissen Situationen der als fair und angemessen erachtete Referenzpreis niedriger ist als der Preis, den Kunden bereit sind zu zahlen. Ausserdem wird auf Heterogenität in Bezug auf die Einschätzung der Wichtigkeit von Review-Kategorien hingewiesen. Aus Angebotssicht ergab eine Studie, die in Österreich, Deutschland und der Schweiz durchgeführt wurde, dass Manager nicht nur von Nutzern generierte Inhalte als sehr wichtig erachten sondern auch gegenüber negativen Reviews eine relativ positive Einstellung haben. Allerdings muss festgestellt werden, dass weder Hotels noch Museen Informationspräsentationsmöglichkeiten, die das Internet bietet, voll ausschöpfen. Bezüglich des entwickelten formativen Instruments zur Erfolgsmessung von Webseiten wird durch Kreuzvalidierung bewiesen, dass der sehr sparsame Index gut funktioniert. Die letzte Studie beschäftigt sich mit der Messung von emotionalen mentalen Modellen und gibt Einblicke in Veränderungen von emotionalen mentalen Modellen von Personen vor und nachdem sie eine virtuelle Welt besucht haben. Im Schlusskapitel "Diskussion und Schlussfolgerungen" werden die Ergebnisse der neun Studien aus theoretischer Sicht kritisch reflektiert sowie Forschungszugänge und angewandte Methoden diskutiert. Ausserdem werden Handlungsempfehlungen für das Management abgeleitet und mögliche Forschungsansätze für die Zukunft vorgeschlagen.

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# CHAPTER 1

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## Introduction

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This chapter defines the scope of the term web 2.0, introduces the research problem of the dissertation at hand and gives a brief summary of user-based website design in tourism. Afterwards, the aim of the project is presented and the objectives of each of the nine studies are outlined. Finally, an overview of the content of this book is given; the requirements for a cumulative dissertation are introduced and it is shown how these requests are met by the present project.

### 1.1 Web 2.0

After the crisis on the technology markets Dougherty and O'Reilly (2005) saw that the companies which had survived the collapse seemed to have things in common. These common set of principles and practices is merged under the term web 2.0. Tim Berners-Lee criticized the term for lacking any coherent meaning and up to now there is no single definition of what web 2.0 is (Anderson, 2006). The most important aspect is that the web is seen as a platform. O'Reilly (2005) stipulated that the more of the following core competences a website can combine the more it is worth being called a web 2.0 website:

- Collective intelligence
- Data sources that get richer as more people use them
- Trusting users as co-developers
- Services, not packaged software
- Customer self-service leveraging the long tail
- Software that runs on more than a single device
- Lightweight user interfaces, development models, as well as business models

From a technological point of view web 2.0 is a more consistent usage of technologies that are partly already available (Schiele et al., 2007). Basic technologies, different kinds of protocols, and



programming languages (e.g. Ajax, Flash) have matured to peer-to-peer technologies, web services, and semantic web (Best, 2006). These developments are allowing for more flexible and user-friendly online content. Thereby, the usage of protocols for the change of information, like RSS (Really Simple Syndication) and mash-ups facilitate interlinking online applications. Available applications such as wikis, web forums, message boards, ratings and evaluation systems, virtual worlds, podcasting, blogs or online videos (vlogs) (Schmallegger and Carson, 2008) allow for time and place independent cooperation between users (Stanoevska-Slabeva, 2008).

Technical solutions which support collaboration and communication between users as well as interactivity which enable the creation of user generated content (UGC) are compromised under the term social software (Allen, 2004). Coates (2005) defined it as “*software that supports, extends, or derives added value from human social behavior [...]*” (accessed on 10.03.2008). Blackshaw (2006) described social media as Internet-based applications carrying UGC which comprise “*media impressions created by consumers, typically informed by relevant experience, and archived or shared online for easy access by other impressionable consumers*” (accessed on 07.05.2010). The technologies applied hide technical details and allow users without technical knowledge not only to download things from the Internet but also to actively participate and upload content (Kolbitsch and Maurer, 2006). Users can participate for instance by ‘posting’, ‘tagging’, ‘digging’, or ‘blogging’. Hoegg et al. (2006) stipulated that the objective of web 2.0 services is to “*mutually maximize the collective intelligence of the participants*”(p. 12).

Due to their characteristics web 2.0 websites are extremely search engine friendly (Gretzel, 2006). Favorable characteristics in search engine environments are frequent updates and numerous hyperlinks which is distinctive for web 2.0 sites due to the engagement of a huge amount of users (Xiang and Gretzel, 2009). Therefore, even consumers who do not know anything about web 2.0 or social media increasingly use UGC as a source of information because sites are advantageously ranked by search engines. Users who not only read but also post UGC intend to inform and educate customers about experiences made with products/services, or to simply share facts, opinions, sentiments, thoughts or rumor on any issue with other users (Blackshaw and Nazzaro, 2006). This kind of content which travelers use as a source of information also challenges marketing and businesses, especially the information-intensive tourism industry.

## 1.2 Research field

Information sources such as friends and relatives, travel-catalogues, travel agencies or the Internet have been researched for decades. Light has not only been shed on information search behavior at different levels of travel decision making (Crompton, 1979; Mansfeld, 1992; Gursoy and McCleary, 2004) but also on which sources are used in which stage of traveling (Bieger and Laesser, 2004) and how catalogues or leaflets need to be designed (Jenkins, 2003). Regarding the Internet, Park and Gretzel (2007) provide an overview of website success factors examined in previous studies on destination marketing websites. A lot of effort is put on how to design websites, booking portals and recommender systems in order to account for diverse types of information search strategies (e.g. holistic vs. analytic search) or to support travelers in different stages of their decision (e.g. inspiration vs. highly-predefined search). In doing so traditional choice models which have been developed to mimic and to better understand users decision making processes have been applied in an online context. A closer look at online information sources reveals that online providers take the ideas of

decision models such as choice set models (e.g. Crompton and Ankomah (1993); Um and L. (1990), general travel models (e.g. Woodside and Lysons (1989)), decision net models (e.g. Fesenmaier and J. (2000)), or multideestination travel models (e.g. Lue et al. (1993)) and implement underlying ideas on their sites. Although most portals/websites provide interfaces taking into account aspects relevant for the later stages of decision making the inspirational phase is accounted for less often. This picture is independent from the group of suppliers, which means it does not matter if it is a site of tour-operators, airlines, or hotels, there is hardly any support for the early decision making stages. The provided websites/platforms assume that users already know when they want to go on holiday, with whom, for how long and to which destination. This is in accordance with study results who reveal that information retrieval technologies support users best if they know exactly what they are looking for (e.g. Marchionini (2006); Ricci (2008)). However, most users are not aware of the range of available options and often they only have a vague idea about what to search for (Wöber, 2006). Therefore, users' queries are often inaccurate and incomplete but they still want precise and complete results (Ricci, 2008). The 'ladder of intelligence' by Mazanec (2006) visualizes that functionalities and learning capabilities of a system increase more the less advanced travelers' decision processes are. Thus, only very few provide applications to inspire travelers like for instance *expedia.at* offering a 'Städtereise-Inspirator' ('City-break inspiration tool') and a 'Strand-Inspirator' ('Sun and beach inspiration tool') in order to increase users' consideration set of possible destinations. Unfortunately, there is no single best strategy, tool, or combination of tools for finding information but it depends on the following factors (Ricci, 2008):

- The characteristics of the information a user is seeking
- The nature and the structure of the content repository
- The search features available
- The users' familiarity with the information and the terminology used
- The ability of the user to use the search tools competently

Retrieval techniques range from database systems to search engines (Marchionini, 2006). Generally, all kinds of Decision Support Systems (DSS) are designed to deal with unstructured problems. In doing so the systems use analytic techniques combined with data retrieval techniques such as content based filtering or collaborative filtering. Hence, a DSS provides some structure to unstructured decision problems thereby being user friendly, interactive, flexible, and adaptable (Sprague Jr., 1980). However, in the course of searching for information for a specific decision users have to make further decisions about which information to consider and when to stop searching. The complexity of these decisions increases because information available online has been growing steadily. Due to information overload, new features appear trying to assist users in finding relevant information (Ricci, 2008).

With web 2.0 the available amount of features further increased dramatically; demanding for systems which do not offer all available applications but only the ones a specific target group requires (Sullivan, 1997). Different requirements appear due to users' knowledge, experience, search strategies, goals, needs, (De Marsico and Levialdi, 2004) as well as due to diverse learning styles (Holtze, 2000). The design of a website should satisfy usability and content requirements of its users without providing optional applications or content to avoid information overload (Di Mascio and Tarantino, 2003; Schaupp et al., 2006).

There are already studies investigating the use of web 2.0 based websites which provide electronic word-of-mouth information (eWOM). However, studies examining eWOM, which generally is informal communication occurring in the form of UGC (Hennig-Thurau et al., 2004), mainly focus on motivational aspects for reading UGC such as blog entries, ratings, reviews, or videos. Motivational aspects revealed are for instance to save decision making time, to make better buying decisions, to know what other consumers think, risk reduction, to get ideas, to narrow down choices, or to meet people (Hennig-Thurau and Walsh, 2003; Bailay, 2005; Goldsmith and Horowitz, 2006; Gretzel and Park, 2007; Lenhart and Fox, 2006; Nardi et al., 2004; Hennig-Thurau et al., 2004). Whether people read blogs to gather specific information or just for fun, blogs are seen as a trustworthy information source (Gretzel and Park, 2007) and consumers increasingly demand websites offering user generated content (Blood, 2002). Hence, suppliers are forced to provide accurate and up-to-date information not only on their traditional sites (e.g. hotel website) but also on web 2.0 websites/platforms. An effective way of attracting readers' attention may be an interesting, unique, and tailored website design (Huang et al., 2008). However, there are hardly any studies focusing on the design of web 2.0 sites based on diverse user groups' preferences. Therefore, the project at hand addresses this issue.

Before the general research question of the dissertation and the objectives of the studies are presented the idea of user-based website design is introduced and differentiated from user-centered design.

### 1.3 User-based website design in tourism

Since the complexity of users' objectives increases steadily and the number of available functionalities for websites increases as well, the goal to satisfy all users at the same time ends up in satisfying nobody at all (Perfetti, 2001). In an IS context, the targeted user group determines which applications should be offered on a website. A website designed to cater to users' needs allows for the development of long-standing communities of shared interests (Schmidt, 2007). Beside observational techniques (sometimes called netnography; a term that refers to ethnography adapted to the Internet) such as eye-tracking, facial expression movements, or shadowing (Kozinets, 1998, 2002; Beckmann and Langer, 2005) there are two different approaches to reveal users' requirements called user-centered design and user-based design.

*User-centered design:* Goodwin (2005) proposed identifying and addressing archetypes called 'personas' because they have the same goals, behavior patterns, and skills. This so-called user-centered design approach first identifies different types of users and describes their requirements which result in so-called 'perspectives'. In other words, stereotypes are created and system-developers have to think about what this stereotype might desire. Then, the revealed 'perspectives' are the input for the website design (De Troyer and Leune, 1998). The advantage of this approach is that designers are forced to think from a meta-level which means that they do not think about their own needs anymore but the focus is on the needs of a certain stereotype. According to Murtinger (2010) this approach culminates in companies producing artificial life-sized cardboard-human beings/stereotypes, give them names, and celebrate their birthdays. To further facilitate thinking on requirements of such a stereotype sometimes organizations produce cups with the name/s of the stereotype or 'nerd-T-shirts' (Murtinger, 2010).

*User-based design:* Abels et al. (1998) recommend a user-based design where the requirements of the users are revealed for example by conducting interviews, asking people about their opinion concerning a prototype or a system. Results of such surveys guide the design or help to improve a system. In order to reveal if a website or more general an information system (IS) is successful, well defined outcome measures are essential. Based on success categories defined by Shannon and Weaver (1949) and others defined by Mason (1978) a success model is derived by DeLone and McLean (1992). The model includes six measures: System quality (SQ), information quality (IQ), use, user satisfaction, individual impact, and organizational impact. A list of success measures by category based on a literature review of 180 scientific articles can be found in DeLone and McLean (1992). Ten years later they updated the model by reviewing and discussing more than 100 empirical articles focusing on success measurement. The updated model includes the concept service quality (DeLone and McLean, 2003). Depending on the level of investigation, the weight of each concept varies. Analyzing the success of a single system SQ and IQ are most important and service quality can be seen as a subset of SQ. Focusing on the success of a whole IS department, service quality might be the key concept.

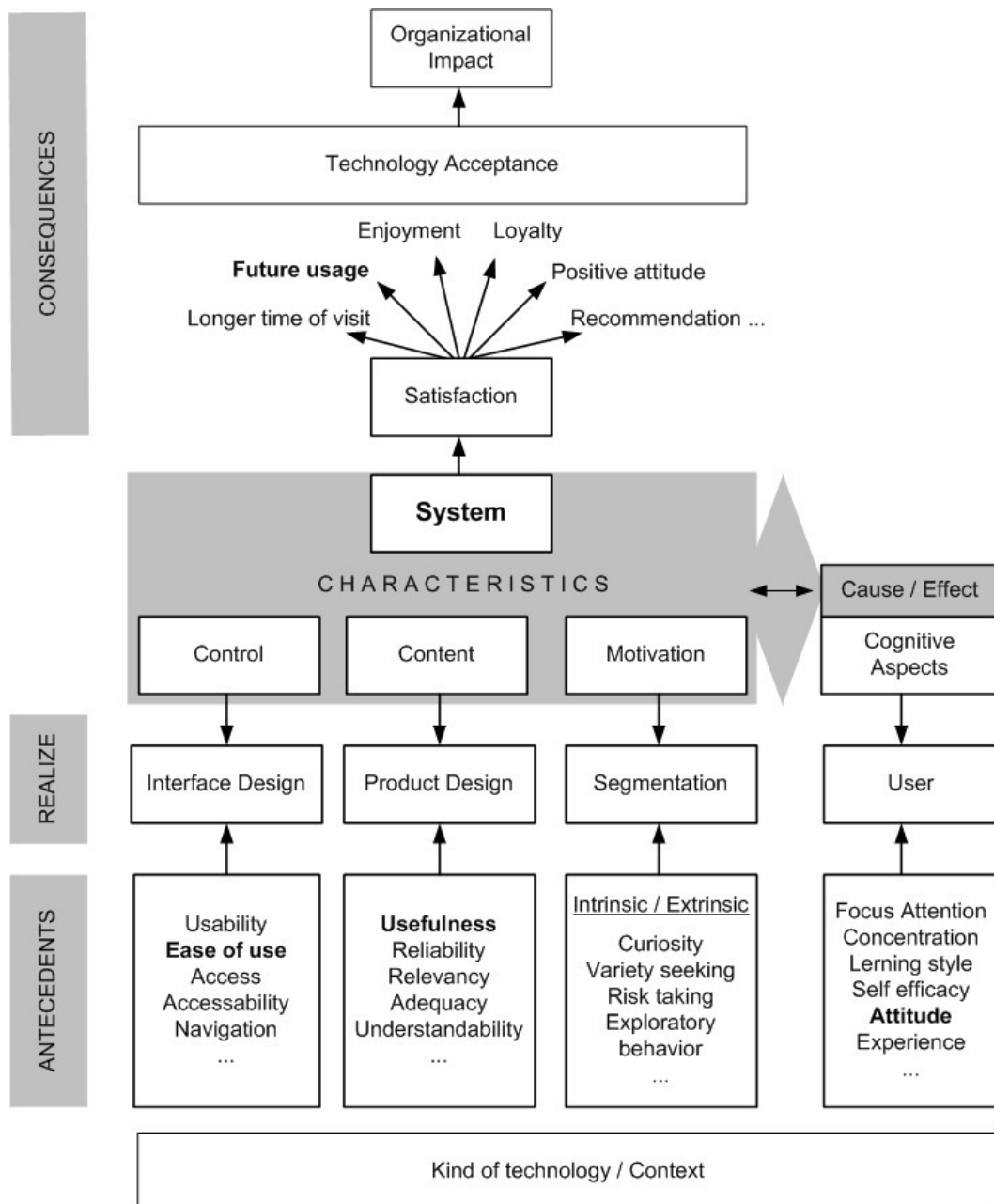
A thorough literature review revealed an enormous amount of concepts which can be taken into account in questionnaires to survey system success (e.g. usability, attractiveness, enjoyment, or informativeness). Thus, it is necessary to somehow pull together existing literature. Based on website design considerations (De Marsico and Levialdi, 2004; Hoffman and Novak, 1996) and further research dealing with the evaluation of IS, Figure 1.1 attempts at arranging the topic and the huge amount of related concepts in a way to get manageable.

In order to be successful a system needs to fulfill a number of antecedents, which according to Hoffman and Novak (1996) can be summarized as three characteristics: **CONTROL**, **CONTENT**, and **MOTIVATION**. There are different approaches where and how a website can realize these characteristics. A match between a certain level of skill and challenge (**CONTROL**) can be reached by an appropriate interface design. **CONTENT**, which needs to focus the users' attention can be influenced by the design of the product itself (i.e. hardware, software, content). **MOTIVATION** impacts focused attention through involvement and can be used as a basis for segmentation (see Figure 1.1). Hoffman and Novak (1996) stipulate that focused attention is affected by content and motivation. In order to include this fact and factors such as attitude which moderate intention of behavior (Davis, 1989; Fishbein and Ajzen, 1975) a cause/effect characteristic called **COGNITIVE ASPECTS** is introduced in the model. In the **COGNITIVE ASPECTS** category, user specific issues mentioned in previous research (e.g. self-efficacy (Bandura, 1977, 1986) or learning style (Holtze, 2000)) which might moderate behavior are subsumed. Figure 1.1 further shows that the context in which a system is used needs to be taken into account to be able to measure the influence of miscellaneous antecedents on outcome measures. The most frequently examined outcome concept is satisfaction which impacts on other consequences such as loyalty, repeat use of a system and consequently on the organizations' success (DeLone and McLean, 1992, 2003). The model was made to be comprehensive as well as parsimonious (Figure 1.1).<sup>1</sup>

<sup>1</sup>Figure 1.1 can be extended by further concepts used for system evaluation purposes. Further, it can be used as a kind of 'toolbox' for deciding which aspects of a system should be evaluated and which concepts should be included in a questionnaire. The model does not determine how concepts within one level (e.g. antecedents and consequences) can/should be interlinked or how many concepts should be used for a specific study. Hence, it is at the discretion of a researcher to choose her/his concepts of interest according to the respective research question. To demonstrate how the model can assist researchers by using the model as a 'toolbox' it is assumed that an empirical study which aims at empirically testing an extended version of the Technology Acceptance Model (TAM) (Davis, 1989) should be designed. Therefore, the antecedent concepts ease of use (**CONTROL**), usefulness (**CONTENT**), attitude towards using (**USER**), and the consequence concept future usage are chosen (TAM concepts are highlighted (bold) in Figure 1.1). In a next step the researcher can easily decide on further concepts that s/he wants to include to extend the TAM.

Previous research on user-based website design primarily focused on the aspects **CONTROL** and **CONTENT** (e.g. Davis (1989); DeLone and McLean (1992); Yang et al. (2005)). There are only a few empirical studies including **MOTIVATION** (Trevino and Webster, 1992; Janiszewski, 1998; Wolfinbarger and Gilly, 2001). Motivation theory stipulates that the driving factor of how a person reacts to the world around him/her is motivation which very much depends on a persons' personality. Motivation (i.e. all kind of motives) is a force that exists to reduce a certain need and therefore also governs people's behavior (Mayo and Jarvis, 1981). McIntosh (1977) divides travel motivations into four categories: physical (physical rest, sports, and entertainment), cultural (desire for knowledge), interpersonal (desire to meet people), and status/prestige (recognition, good reputation). Other researchers classified motivations in extrinsic and intrinsic motivations. The first group is contradictory to the second one because activities are not dependent on external rewards (Deci, 1971; White, 1959; Ryan and Deci, 2000). Beside motivation other segmentation criteria might be used.

*Segmentation:* Getting reliable results about the performance level of a website based on questionnaires calls for definitions concerning the target group/s which should be addressed. Before a target group's profile can be established the groups (segments) must be identified. There is a huge number of variables available which can be used to characterize segments. Commonly used criteria can be applied for segmentation in an IS context too. Thus, Internet users can be segmented like traditional customers based on their needs, wants, benefits, solutions to problems, usage situation, or usage rate (Lilien and Rangaswamy, 2003). Descriptors used as a basis for segmentation are classified into five groups (demographics, psychographics, behavior, decision making, and media usage patterns) – most of them can be easily adapted for online purposes. Other researchers base segmentation on expectations (Webster, 1989), sentiments (Chen, 2003b), experiences (Perdue, 1985), searching behavior (Hoffman and Novak, 1996), or the most obvious differentiation in an online context between novices and experts as well as between private and professional users (Hoegg et al., 2006). Further, benefit segmentation is an approach to segment users' based on benefits that consumers think to receive if they consume a certain product or service. Hence, benefits sought by people determine their behavior (Haley, 1968, 1984, 1995). According to theories of Optimal Stimulation Level (OLS) users differ on their level of curiosity, variety seeking, exploratory behavior, and risk taking (e.g. Zuckermann (1979); Raju (1980)). These concepts are also interesting as a basis for profiling a website's target group.



**Figure 1.1:** System evaluation – Concepts applied in user-based system design

## 1.4 Research objectives and study descriptions

Generally, one can say the closer the site architecture is to the mental model of the user, the higher the users' satisfaction (Norman, 2002). Website designers need to be aware of the fact that users interpret website elements based on their physiological and psychological factors. In doing so, it is important that the website elements do not communicate wrong meanings to the users (Mandel, 2002). Creating a compelling online experience for diverse groups of e-customers is a challenge and of utmost importance for the success of a website and consequently of the enterprise. In the field of tourism there is not much literature discriminating between different requirements based on motivational and cognitive aspects of certain user-groups (e.g. Nysveen et al. (2005); see Figure 1.1). The hypothesis implicitly assumed is that there are differences between a priori defined user-groups regarding their satisfaction with web 2.0 websites. Thus, the central research question of this dissertation is:

*Are there any differences between a priori defined user-groups  
regarding their satisfaction with web 2.0 websites?*

In order to take into account diverse stakeholders the aim is not only to gain insights for the demand side, but also if the supply side is aware of the increasing importance of web 2.0 contents and involved potentialities for service and product presentations. UGC-platforms enable organizations to actively listen to their customers and to gather unbiased feedback regarding the quality of products and services offered or sold (Dwivedi et al., 2007; Hennig-Thurau et al., 2004; Pitta and Fowler, 2005). Thus, the Internet not only allows for creative information presentation but opens new possibilities for market research in terms of a valuable source for detecting travelers' wishes and needs (Kozinets, 2002). The author implicitly assumes that hotels and/or museums do not entirely seize opportunities the Internet provides. Therefore, the proposed research question for the supply side is:

*Do hotels and/or museums tap possibilities appearing in  
connection with the Internet to the full potential?*

Regarding the demand side three studies analyze differences between a priori defined user-groups. In order to reveal not yet identified segments which could be targeted by marketers one study (Study 5) accounts for unobserved heterogeneity in connection with preferences for hotel review categories. Two studies aim at examining the supply side by surveying whether hotel managers use UGC as a valuable source of information or not. Further, it is investigated if social media is used for marketing purposes and if 3D applications are implemented by hotels and museums to gain a competitive advantage by addressing search requirements of different user groups. The results of these studies will provide numerous managerial as well as theoretical implications regarding the following: i) website conceptualization catering to travelers' needs; ii) segmentation aspects; iii) considerations concerning the integration of social media and 3D applications into online marketing mixes.

To bring the project into a sound framework three further aspects are tackled in this dissertation. First, due to the fact that there is no existing typology for travel-blogs another study (presented in the first part) is conducted aiming at filling this gap. Second, after a thorough literature review an alternative, more parsimonious measurement approach for website performance is suggested, empirically tested, and validated. Together with the study on website performance, the part 'Measurement

issues' also includes a chapter on emotional mental models; a topic which seems to be neglected in IS literature as well as in the field of tourism. Outcomes of these studies permit suggestions regarding measuring website performance and emotional mental models.

In the following the objectives of the studies comprised in this dissertation will be outlined.<sup>2</sup> As already mentioned the first study will be on defining and categorizing blogs (Part I). The central research question for the demand side will be dealt with in four different studies; in each study different hypotheses will be proposed and as such various aspects will be focused on (Part II). In order to answer the research question for the supply side, two studies are included highlighting different aspects from hotel managers' point of view regarding social media and 3D product/service presentation (Part III). Finally, measurement issues are addressed by two studies (Part IV).

*Study 1 – Taxonomies of travel blogs:* Study 1 aims at examining whether existing categorizations can be applied to travel blogs or not. The study at hand examines 68 travel blog sites. By applying a content analysis it is revealed that there is a need for a unique categorization for travel blogs. Although there is some degree of overlap with categories found in previous literature new categories are introduced in order to cater to the needs of travel blogs. Furthermore, a sample of travel blogs is assigned to the travel blog categorization. Then, it is demonstrated that differences between travel blog categories exist based on technical features offered on the sites analyzed. Finally, benefits of the derived categorization such as determining whether already published research based on specific blog sites is comparable and on making search engines more accurate are discussed.

*Study 2 – Relationship between motivation and website features:* Study 2 applies the Partial Least Squares Structural Equation Model (PLS–SEM), a method rarely used in the field of tourism. The study aims at assessing the relationship between the importance of website features and motivational factors for reading blog entries. Further, differences between two segments, namely relaxation–seekers and adventure–seekers are examined. Motivational factors included are reducing risk, time saving, reliable information, authentic information, trip preparation tools, and fun and social contact. Results indicate that only a few motivational factors are essential antecedents for the perceived importance of certain website features. Moreover, it has been shown that the influence of motivational factors on the importance of website features differs between travelers who seek relaxation and those who seek adventure.

*Study 3 – Differences between goal–directed and experiential search:* Study 3 aims at investigating the influence of the actual search goal on the search behavior. Travelers' interaction with a website may depend on whether they search for precise factual information or rather stimulus driven and unplanned. Therefore, the study aims at showing how searchers who browse a website just for fun or search factual information differ in their perception. Theories from online service quality and technology acceptance are critically reflected and extended to gain insights into drivers of value. Multiple group analysis including responses from 445 travelers is applied. Results indicate that the main drivers for value and satisfaction for a goal–directed search are content quality followed by

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<sup>2</sup>Note: In order to provide a uniform layout all studies are presented as chapters written in Latex. However, all studies included are largely based on the publications mentioned in the heading of each chapter. To demonstrate the original layout of each publication a screen shot of the original publications' first pages are provided in the Appendix. Further, it needs to be mentioned that the different length of articles is due to the guidelines of the various conferences and journals respectively and does not signal any weighting of the importance of the chapters.



usefulness. These effects are attenuated for the experiential search. Further, enjoyment only exhibits effects for experiential searchers.

*Study 4 – Communication modes:* The objective of Study 4 is to identifying influences of users' preferred communication modes to get an understanding of drivers of website satisfaction. The research model extends known theories from technology acceptance literature and tests the influence of communication mode through the evaluation of a website. The model is tested employing structural equation modeling. Multiple group analysis exhibits differences between people who prefer text over visual based communication modes (verbalizer vs. visualizer). The results reveal major differences between the two preferred modes. The main driver for verbalizers is content while the main driver of satisfaction for visualizers is design. These results indicate that website designers need to take the preferred mode of communication into account to facilitate online information search.

*Study 5 – Preferences for hotel review categories:* Study 5 aims at investigating the influence of hotel guest reviews on customer hotel preferences in the context of booking hotels online applying a conjoint design (a method which is underused in the field of tourism). The empirical research shows that the subjects' willingness to pay is significantly higher than their reference price for hotels. In addition to that, the results of this study indicate that reviews on the hotel in general and on the hotel's rooms are perceived the most useful for consumers reading reviews. Applying a cluster analysis, seven different segments are identified with a neural network approach. The findings indicate that users of consumer reviews do not belong to only one homogeneous group but perceive the importance of review categories differently. The chapter also provides managerial implications.

*Study 6 – Monitoring web 2.0:* Increased importance of User Generated Content (UGC) forces hotel managers to place greater emphasis on monitoring their online reputation. Study 6's objective is to investigate the hospitality industry's attitude towards UGC as well as if and how the industry monitors online reviews of tourists. Data collected from an online survey conducted in Austria, Germany, and Switzerland are examined. The analysis of 693 completed questionnaires shows that managers in all three countries assess evaluating UGC as highly important. This is also reflected in a high percentage of managers monitoring their hotels' reputation themselves and by not delegating the task to employees. Further, managers have a rather positive attitude towards negative reviews. However, only a minority uses social media for advertising purposes.

*Study 7 – 3D applications in tourism:* Study 7 focuses on the aspect that the Internet allows for the presentation of services/products in various creative ways. The study classifies whether representatives for tier one and tier two category websites tap the possibilities of the Internet to its full potential. Tier one incorporates all tourism related services which are only existent because of tourism while services of the second group are used by both tourists and local residents. By applying a content analysis, the websites of hotels (tier 1), as well as museums (tier 2) of 20 different European cities are examined. Results show that differences exist between cities, which account for most of the overnight stays, and cities which account for the smallest number of overnight stays in Europe. Furthermore, differences between hotel and museum websites are detected concerning the use of 3D applications.

*Study 8 – Alternative measurement approach:* The objective of Study 8 is to critically reflect measurement issues concerning constructs used in order to design websites in a user-based manner. Website performance and evaluation has been a research topic in tourism throughout the last years. Researchers followed the predominant reflective measurement paradigm. However, with more research on formative measurement debate on the appropriate measurement approach arose. After a thorough literature review and discussion on the measurement necessary for the research question at hand, the paper suggests an alternative measurement for website performance. The empirical study on 445 travelers searching for information online reveals that the formative index for website performance works well and also exhibits effects on satisfaction, value, and loyalty.

*Study 9 – Emotional mental models:* The last study, Study 9, picks a topic which seems to be neglected in IS literature as well as in the field of tourism, viz. emotional mental models. The first objective is to define emotional mental models. After the definition, an empirical study follows which aims at capturing emotional mental models in an online environment. A quasi-experimental design is used. Based on a two-point measuring approach differences between mental models before the visitation of a virtual world and after the actual experience are revealed. In doing so both emotional mental models concerning product and service presentations are examined. Results probe that there are differences for some basic emotions. However, there is no clear direction if emotional mental models change towards a more positive or a more negative picture.

## 1.5 Outline of the dissertation

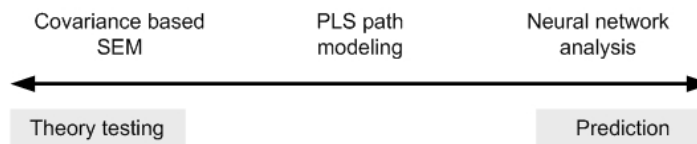
Beside the introduction (Chapter 1) and a final discussion and conclusion chapter (Chapter 11) the thesis at hand comprises four parts (see Table 1.1, 1.2). The first one intends to provide definitions and a categorization for travel blogs (Study 1; Chapter 2). The second and the third part then address the empirical studies conducted. While Part II presents four studies based on travelers, Part III focuses on the supply side. Part II comprises three different studies (Study 2–4; Chapter 3–5) addressing differences between a priori defined segments. A priori defined segments analyzed are relaxation seekers vs. adventure seekers, goal-oriented vs. experiential information searchers, and verbalizer vs. visualizer. Additionally, Part II includes a fourth study (Study 5; Chapter 6) taking into account unobserved heterogeneity (a posteriori segmentation) based on the users' perceived importance of hotel review attributes. The supply side (Part III) is presented with two studies, whereas the first (Study 6, Chapter 7) surveys hotel managers' attitude towards UGC and the usage of social media for marketing purposes, the second (Study 7; Chapter 8) tackles the usage of 3D applications to creatively present online information. Part IV is dealing with an alternative measurement approach for website performance (Study 8; Chapter 9) and measuring emotional mental models (Study 9; Chapter 10). For each study the conceptual framework as well as the construct of interest are outlined in Table 1.1. Basically, Table 1.2 summarizes the structure of the dissertation and highlights details regarding research design, research object, segmentation, advanced analytical methods applied, software package used and where and when the study is published. Table 1.2 is self-explanatory; further explanation is only needed for advanced methods used.

Concerning advanced analytical methods used there is an ongoing discussion regarding Covariance-Based SEM (CBSEM) and Partial Least Square SEM (PLS-SEM). Therefore, advantages and disadvantages of CBSEM and PLS-SEM are discussed briefly. In order to address a third related method

		Conceptual framework	Construct of interest
Part I	Study 1	Blog genres, travel blogs	Categorization
Part II Demand side	Study 2	Sensation seeking, motivation for reading blog entries, website design	Importance of website features
	Study 3	Usefulness, ease of use, enjoyment, content quality, value	Satisfaction, loyalty
	Study 4	Content quality, usefulness, enjoyment, ease of use, website design	Satisfaction, loyalty
	Study 5	Willingness to pay, reference price, hotel review attributes	Preferences for review categories
Part III Supply side	Study 6	Perceived importance, e-reputation	Attitude, behavioral intention
	Study 7	Information presentation	Usage of 3D applications
Part IV	Study 8	Satisfaction, value, loyalty	Website performance
	Study 9	Emotional perception	Emotional mental models

**Table 1.1:** *Conceptual framework of the studies conducted*

CBSEM and PLS-SEM are differentiated from Neural Network Analysis (ANN). The following short descriptions show that there are major differences between CBSEM, PLS-SEM, and ANN. Generally it is true that the analytical method to be used needs to be in accordance with different objectives. Hence, depending on the research question and/or setting the one or the other method should be used. (Figure 1.2).



**Figure 1.2:** *Objectives of SEM, PLS-SEM, and ANN*

Generally, CBSEM as well as PLS-SEM belong to the family of Structural Equation Models (SEM) but depending on the goal of the analysis and the data, one or the other is more appropriate (Dijkstra, 1983; McDonald, 1996; Henseler et al., 2008). Gefen et al. (2000) stipulate that SEM become mandatory for testing linkages between concepts and for validating instruments. According to Henseler et al. (2008) the usage of the methods is complementary and not competitive. Researchers did a comparison of the two methods: e.g. based on two assumptions, i.e. symmetry of the distribution and the reflective modeling of the indicators (Vilares et al., 2009), or focusing on the performance of CBSEM and PLS-SEM for formative exogenous latent variables (Ringle et al., 2007). Main characteristics for each of these three methods are presented in the following.

*Covariance Based Structural Equation Modeling:* As Figure 1.2 shows the parameter oriented CBSEM is used for theory testing. In doing so the aim is to minimize the difference between the empirical covariance matrix (sample) and the theoretical covariance matrix (model). Applying CBSEM stringent statistical conditions need to be taken into account. Typically multivariate normal distribution of variables and error terms are required, and the independence of the observations needs to be fulfilled.

Moreover, the method is mainly used with reflective indicators. Concerning the sample size, recommendations for the minimum number of cases range from 200 to 800. Finally, CBSEM cannot handle very complex models, PLS is superior in this aspect (Chin and Newsted, 1999; Haenlein and Kaplan, 2004). Several articles offer guidance for the use of CBSEM (e.g. Steenkamp and Baumgartner (1998); Malhotra and McCort (2001); Iacobucci et al. (2003)).

*Partial Least Square Path Modeling:* PLS–SEM is the most prominent of variance–based techniques. It was designed by Wold (1974, 1982, 1985) and aims at maximizing explained variance. According to an analysis of previous research (e.g. Fornell and Bookstein (1982); Lohmöller (1989); Bagozzi (1994); Diamantopoulos and Winklhofer (2001)) discussing and applying PLS–SEM several motivations for the use of this method are debated (Henseler et al., 2008): The most prominent issues are exploration versus prediction. Hence, the method is used at the stage of theory development. Further advantages of PLS–SEM are that it has less stringent assumptions about data distribution, it delivers latent variable scores, it can estimate very complex models, and it avoids small sample size problems - recommendations range from 30 to 100 cases. Furthermore, PLS–SEM is suitable when the independence of observations cannot be assured and it can easily be applied for both reflective and formative measurement models (Chin and Newsted, 1999). An article by Henseler et al. (2008) gives a comprehensive introduction into the usage of PLS–SEM path modeling.

*Artificial Neural Network Analysis:* ANN has become recognized for its superior forecasting ability and that it is an appropriate method for predicting the outcome of complex nonlinear processes (West et al., 1997). ANN function by constantly adjusting the values of the interconnections between neural units. Thus, ‘intelligent learning’ is implemented the way the human brain works. The method passes through a process by which the network evaluates success, learns to improve its performance, recognizes patterns, and develops generalizations. This process is called ‘training rule’ (West et al., 1997). Neural network models are also capable of classifying subjects (e.g. Mazanec (1992, 1999); Chen (2003a); Bloom (2005)) for which the method is used in the present project. In doing so the TRN–32 (Mazanec, 2008) software is applied. The underlying algorithm of TRN–32 is the neural gas algorithm (Martinetz and Schulten, 1991) which is based on the competitive learning principle, i.e. typical cases or segments are “*rivaling to approximate the frequency distribution of the empirical data*” (Mazanec, 2001) (p. 898).

	Part I Taxonomy Study 1	Part II Demand side				Part III Supply side		Part IV Measurement issues	
		Study 2	Study 3	Study 4	Study 5	Study 6	Study 7	Study 8	Study 9
<i>Research design</i>	Content analysis	Survey	Survey	Survey	Survey	Survey	Content analysis	Survey	Quasi-experiment, survey
<i>Research object</i>	Web 2.0 websites	Travelers	Travelers	Travelers	Travelers	Hotel managers	Tier 1 and 2 websites	Travelers	Travelers
<i>Segmentation</i>	–	a priori	a priori	a priori	a posteriori	–	–	–	a priori
<i>Advanced methods</i>	Hierarchical cluster analysis, Monte Carlo Simulation	PLS-SEM, PCA	CBSEM	CBSEM, ANN <sup>1</sup>	Conjoint Analysis, ANN, Wilcoxon signed-rank test	ANOVA, Monte Carlo Simulation	–	CBSEM	PCA, McNemar test
<i>Software used</i>	SPSS	Smart-PLS	Mplus	Mplus, TRN32	SPSS, TRN32	SPSS	Excel	SPSS	SPSS
<i>Published in Year</i>	in Review –	CAUTHE <sup>2</sup> 2009	in Review –	ENTER <sup>3</sup> 2010	CAUTHE 2009	TTRA <sup>4</sup> 2010	EMAC <sup>5</sup> 2010	GMC <sup>6</sup> 2010	ENTER 2009, in Review

<sup>1</sup> Artificial Neural Network<sup>2</sup> Council for Australian University Tourism and Hospitality Education<sup>3</sup> Conference organized by the International Federation for Information Technologies in Travel and Tourism (IFITT)<sup>4</sup> Travel and Tourism Research Association<sup>5</sup> European Marketing Academy<sup>6</sup> Global Marketing Conference**Table 1.2:** Structure of the thesis and study details

## 1.6 Fulfillment of the requirements for cumulative projects

Cumulative dissertation projects (synonym: papered dissertation) are not as common in Austria as in other countries (e.g. the Netherlands, Sweden, Denmark), therefore there are no standardized requirements yet. The Institute for Tourism and Leisure Studies (ITF) has developed rules allowing for fair conditions among doctoral students.

*Requirements:* As a realistic starting point for publications the second part of a four years contract is assumed. A-plus Journals are not considered, whereas contributions to conference proceedings are seen as highly important in this stage of a scientific career. Further, contributions to journals have to survive the first stage of the review process. Finally, each student needs to publish at least one single authored article (no matter which type of publication) to show that s/he can withstand competition without co-authors. Table 1.3 summarizes the requirements and at the same time shows the level of fulfillment regarding the present project. Further, community services are listed because this is another part of an academic career which is not only highly important but, also a worthwhile learning source. Table 1.3 shows that 15 points need to be reached. The amount of points which can be reached for one publication depends on the kind of article (e.g. journal, proceedings of a meeting, book chapter) and on how many authors contributed. The calculation factor penalizing for the number of authors is  $2/(n+1) \times \text{amount of points achievable for single authored publication}$ .

Type of publication	Points achievable <sup>a</sup>	Required amount of points <sup>b</sup>	Compliance
A-Journal	10	min 6	17.3 <sup>e</sup>
B-Journal	6	no <sup>c</sup>	
Lower/not ranked Journals			
Proceedings of a meeting	3	min 3	19
Book chapter	3	max 3	1.2
Single authored article	According to the type of article		3
Total required amount of points		15	
Total amount of points achieved			32

Further contributions and community services			
Amount of papers presented at scientific meetings			9
Editor for conference proceedings			1
Invited contribution in an encyclopedia			1
Book discussion			1
EMAC session chair			2
Ad hoc reviewer for:	Conference papers		13
	Journal article		4
	ÖGAF – Tourissimus		1
Supervised master theses <sup>d</sup>			14

<sup>a</sup> Amount of points achievable for a single authored contribution (n).

<sup>b</sup> For some types of contributions there is a required minimum for others a determined maximum of points. The amount of points is due consideration of the calculation factor:  $2/(n+1) \times \text{amount of points achievable for single authored publication}$ .

<sup>c</sup> No necessity.

<sup>d</sup> Thesis for the old and the new program at WU Vienna are included. Only master theses which are completed are included, ongoing projects are excluded.

<sup>e</sup> Two articles are still in review.

**Table 1.3:** Requirements, fulfillment, and community services

The dissertation does not include all published publications mentioned in Table 1.3. Contributions not included are listed in Table 1.4 and presentations held are itemized in the Appendix.

	<b>Author/s, year, title</b>
<i>Editor</i>	Keiler, Stephan, Stangl, Brigitte, Pezenka, Ilona, Hrsg. (2009). Reiserecht, Tagungsband des Europäischen Reiserechtstages 2008. Wien: Springer.
<i>Journal article</i>	Mazanec, Josef, Ring, Amata, Stangl, Brigitte, Teichmann, Karin. Forthcoming. Usage patterns of advanced analytical methods in tourism research 1988-2008: A six journal survey. Information Technology and Tourism
<i>Chapters in books</i>	Ernst, Andreas, Kastner, Margit, Stangl, Brigitte, Teichmann, Karin (2009). Die Präferenzen der österreichischen Mobiltelefonkunden: Anwendung des LLBT für Conjoint Ratingdaten. In: Präferenzanalyse mit R, Hrsg. Hatzinger, Reinhold; Dittrich, Regina; Salzberger, Thomas, 73-98. Wien: Facultas.
<i>Contributions to proceedings</i>	<p>Stangl, Brigitte, Dickinger, Astrid (2010) Tourism Website Performance – An Alternative Measurement Approach. In Marketing and the Core Disciplines: rediscovering references? 39th European Marketing Academy Conference (39th EMAC), CD-CD. Copenhagen – Denmark.</p> <p>Hofbauer, Julia, Stangl, Brigitte, Teichmann, Karin (2010). Online Destination Marketing: Do Local DMOs Consider International Guidelines for Their Website Design? Information Communication Technologies in Tourism 2010, Editors Gretzel, Ulrike; Law Rob; Fuchs Matthias, 261-271. Lugano: Springer.</p> <p>Stangl, Brigitte, Dickinger, Astrid (2009) Differences in Website Preferences Based on the Information Search Task: Findings from a Goal Directed and Exploratory Search Setting. In Marketing and the Core Disciplines: Rediscovering references? 38th European Marketing Academy Conference (38th EMAC), CD-CD. Audencia Nantes - France.</p> <p>Stangl, Brigitte, Weismayer, Christian (2008). Websites and Virtual Realities: a Useful Marketing Tool Combination? An Exploratory Investigation. In Information and Communication Technologies in Tourism 2008, Editors O'Connor, Peter, Höpken, Wolfram and Gretzel, Ulrike, 141-151. Innsbruck: Springer.</p>
<i>Research Report</i>	Kastner, Margit, Ring, Amata, Stangl, Brigitte (2010). FACETS Rasch Software illustriert am Beispiel von Multiple-Choice-Tests in Marketing. Research Report Series (Report 103), IRT Software: Überblick und Anwendungen, Editors Maier, Patrick and Hatzinger, Reinhold, Department of Statistics and Mathematics. Wien: Wirtschaftsuniversität.

**Table 1.4:** List of publications not included in the dissertation

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## **Part I**

# **Defining and categorizing blogs**



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### Taxonomy of travel blogs based on existing genres

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In Review: Journal of Information Technology and Tourism

This chapter investigates, if the categorization by Herring et al. (2005), which is currently the most comprehensive categorization available for blogs, can be applied to travel blogs. Based on the systematic description of these categories the chapter at hand examines 68 travel blog sites. By applying a content analysis it is revealed that there is a need for adaptation. Although there is some degree of overlap categories called news, rating, guide, and community are introduced in order to cater to the needs of travel blogs. Furthermore, a sample of travel blogs is assigned to the adapted categorization. Then, it is revealed that differences between travel blog categories exist based on technical features offered on the sites analyzed. Finally, benefits of the derived categorization such as determining whether already published research based on specific blog sites is comparable or not and making search engines more accurate are discussed.

*Keywords:* Web 2.0, travel blogs, categorization, technical features.

#### 2.1 Introduction

*“A weblog is a coffeehouse conversation in text, with references as required.”* (Blood, 2002, p. 1). Due to the increasing amount and the characteristics of blogs or social media sites in general (e.g. regular updates, including numerous links), these websites are ranked highly by search engines such as Google and Yahoo! Since a majority of users use search engines to search for information, they guide users directly to social media sites. Therefore, even if users are not familiar with social media, they will use them because the sites are listed on top of the result pages of search engines (Gretzel and Yoo, 2009; Kim and Fesenmaier, 2008; Pan et al., 2007). Hence, social media sites are gaining importance and research puts a lot of effort into understanding the motivational factors of people participating in social media sites, by either using it as a source of information (Bailey, 2005; Goldsmith and Horowitz, 2006; Gretzel and Park, 2007) or by posting their own content (Nardi et al., 2004; Stöckl et al., 2006). Furthermore, issues concerning the design are investigated (Engele et al., 2009; Kansa and Wilde,



2008), as well as the impact of User Generated Content (UGC) on the hospitality industry (O’Conner et al., 2008; Ye et al., 2009) and on destination marketing (Carson, 2008; Schmallegger and Carson, 2008). Emotional aspects such as the language of emotion in blog texts or how one can detect emotions in blog entries (Gill et al., 2008a,b; Mishne, 2005) are also examined.

In order to investigate all these issues, many surveys are based on blog websites such as Tripadvisor, Travelpod.com, HolidayCheck, and Travelblog.org (Bosangit et al., 2009; Engele et al., 2009; Gretzel et al., 2007). However, it is important to know if the analyzed sites belong to the same category, i.e. if the sites are intended for similar purposes. Thus, this research is motivated by the question if the most comprehensive classification currently available for blogs is suitable for blogs within a specific topic. Therefore, the genres by Herring et al. (2005) come under scrutiny based on travel blogs. A well defined classification, in conjunction with elaborated characteristics is essential because it assists researchers in two ways: First, it facilitates determining whether already published research based on specific travel blog sites is comparable or not. Second, it supports researchers in selecting certain type/s of travel blogs for future surveys. From a managerial point of view a classification aides web designers and tourism managers respectively to decide more precisely on which blog category they want to program for whom. Moreover, knowledge about technical features offered by each category allows search engine providers to narrow down the search results by suggesting to users to select which category they actually want to base their information search on. Thus, travelers can be provided with more accurate results. There are already several attempts of explicitly categorizing blogs based on a blog’s approach, purpose, content, and structural characteristics. Probably the most detailed one is proposed by Herring et al. (2005). Other categorizations are suggested by Blood (2002) or Krishnamurthy (2002). However, travel blogs are either not explicitly accentuated or Herring et al. (2005) dedicated them to a category called ‘others’. This category includes all blogs which are concerned with purposes not covered by an accurately defined category.

The purpose of the study at hand is to investigate travel blogs in more detail. The role of this study will be multifaceted: i) based on a study done by Herring et al. (2005) a categorization for travel blogs is developed; ii) characteristics for each category are adapted in order to cater to the needs of travel blogs; iii) light is shed on travel blog categories by examining if there are differences concerning technical features provided on blog sites. The remainder of the paper is organized as follows: first of all, literature focusing on the categorization of blogs is presented. Then, the research method is outlined, thereby focusing on the selection of a sample of websites which will be categorized later on. Afterwards, a categorization of blogs proposed by Herring et al. (2005) is adapted step by step to the needs of travel blogs by applying a qualitative approach. Furthermore, characteristics for each category are elaborated. In the results section presents details about the sample of allocated websites based on characteristics defined for each travel blog category. Furthermore, it is shown which technical features are provided on different travel blog categories. Finally, theoretical and managerial implications are discussed and suggestions for future research are made.

## 2.2 Theoretical background

The philosophy of science highlights the fundamental point of classification (Hjørland and Pederesen, 2005; Kantor, 1953; Kemeny, 1959). According to Wolf (1926), the laws of science may only be verified if there is a complete classification of certain issues. Thus, no matter if a classification

is done explicitly or implicitly, it must take place (Punj and Stewart, 1983). However, categories do not necessarily need to have clear-cut boundaries, but it is essential to have an idea of group membership (Wittgenstein, 1953). Basically, there are two different ways of approaching classifications: the basis can either be a “*complete theory of classification, buttressed by a formal theory of data*” or “*complete formal statement of the purpose for which the classification is required*” (Jones, 1970, p. 97). A categorization comprises a whole system of categories and tries to find definitions of the meanings of each category as well as relations between categories. A specific category is always a sub-category of a more general category and it can be divided into sub-categories itself (Chen, 2000).

Blogs are explicitly embedded in two different schemes of classification: First of all, blogs are one form of social media sites, others are media sharing sites, social networking sites, or wikis (Gretzel and Yoo, 2009). Secondly, depending on the services offered on a web 2.0 site, blogs belong to the category of platform and tools (Hoegg et al., 2006). As such, blogs provide a platform where users can create their own content in the form of text, images, videos, links, audio, and/or experiential content. However, the category blog can also be classified into sub-categories itself. Several researchers implicitly classify blogs. Precisely because evaluations of the achievement of characteristics of blogs surveys are based on various kinds of sites (Gretzel and Yoo, 2009; Halavais, 2002). For instance, Dippelreiter et al. (2008) and Scott and Johnson (2005) discuss blog platforms by drawing on the ideas of online community studies and by focusing on available technological features.

A rather obvious categorization of blogs themselves can be made based on the topic including watchblogs, food blogs, travel blogs, or war blogs. Then, the type of documents posted can be the basis for categorization like video blogs and photo blogs (Blood, 2002), also called vlogs and phlogs respectively. Furthermore, in 2002 Greenfield introduced the term moblog indicating blogs, which can be updated by using a mobile phone (Rheingold, 2003). However, there are also several attempts of explicitly classifying blogs based on a blog’s approach, purpose, content, and structural characteristics (Blood, 2002; Herring et al., 2005; Krishnamurthy, 2002). According to Herring et al. (2005) there are five different forms of blogs, i.e. personal journals, filter, k-logs, mixed, and other. Blogs that comprise entries in chronological order and for which only one author is all-dominant are called personal journals (Halavais, 2002; Herring et al., 2005). This category of blogs should have entries at least every ten to eleven days (Halavais, 2002). The main issue of a so-called filter is that it comprises relevant links of a certain topic and people can comment on it. Therefore, filters are a collection of links which at the same time provide users with the chance to exchange opinions between each other (Herring et al., 2005). Filters typically contain links to other websites that allow UGC in a more extensive form or provide further links. However, there are rarely filters in the purest form, instead there are so called ‘mixed filters’ containing links and comments but also personal issues about the author/s (Reichmayr, 2005). Knowledge blogs, abbreviated k-logs, convey expert knowledge about a certain topic. However, sometimes people do not want to share expertise because the perceived value of an employee might decrease afterwards. On the other hand, people like to discuss topics they are experts in. Hence, k-logs often are accessible to a restricted user group only or users have to subscribe or even have to pay a fee (Szwilius and Ziegler, 2003). Mixed blogs is a category which absorbs all blogs exhibiting characteristics of several categories (k-logs, personal journals, filters). A final category labeled ‘others’ comprises all blogs which are concerned with purposes not covered by other categories. Issues, which are not covered are poetry, travel documentation, or song lyrics (Herring et al., 2005). In Table 2.1 the characteristics of the categories are summarized briefly.

Type	Description
<i>Personal journal</i>	Also called online diaries which are about the blogger him/herself, i.e. about the life, feelings, and thoughts of the author of the blog entries. Moreover, personal journals are described as highly interactive and include many short entries per day.
<i>Filter</i>	These kinds of blogs do not contain information about the blogger him/herself but about world news, i.e. information external to the blogger. Filters focus primarily on links and are intended to show the user around the web. Furthermore, short comments of bloggers are included.
<i>K-logs</i>	This is the abbreviation for knowledge blogs, which are created for the purpose of sharing knowledge between groups of people. Such blogs comprise information about a certain topic, product, or project. It is most likely that k-logs are restricted to a specified group of users, i.e. to a certain community.
<i>Mixed blog</i>	If blogs are not unambiguously personal journals, filter, or k-logs but comprise characteristics of more or all of these categories, then Herring et al. (2005) called them mixed blogs.
<i>Other</i>	All blogs, which are concerned with purposes not covered by the other categories are summarized in a category labeled 'other'. According to the authors, issues not covered comprise poetry, travel documentations, or song lyrics.

**Table 2.1:** Description of blog genres categorized by Herring et al. (2005)

Apart from the categories defined by Herring et al. (2005), Blood (2002) specifies 'subject-specific filter' as well as so called 'notebooks'. Subject-specific filters exhibit the same characteristics as filters according to Herring et al. (2005). However, as the name already indicates, subject-specific filters are restricted to a certain topic. Hence, it is a collection of links about a certain subject. Such blogs are designed to create a positive reputation of the author/s. The category called 'notebooks' comprises longer records of ideas and stories. These focused essays are personal but the entries are not presented chronologically. Unlike with filters, there is no focus on links – links have only a supporting function (Blood, 2002). Krishnamurthy (2002) adds the categories 'support groups' and 'community blogs'. The main issue of support groups is that this category of blogs is not only about personal issues but it also puts a high focus on the composition and preservation of a community. The difference between support groups and community groups is that the former focuses on personal aspects about the blogger while the latter is more interested in a specific topic. However, both put greater emphasis on the community as such (Krishnamurthy, 2002). Since there is a lack of previous research focusing on systematically describing characteristics of travel blogs and since Herring et al. (2005) categorize travel documentations as others, the following research question is proposed:

*Research question:* Are existing blog categorizations applicable for travel blog sites or is there a need for adaptation?

## 2.3 Methodology

In order to find the most appropriate categorization for travel blogs several steps have been undertaken (Table 2.3). The first objective is to find a sample of travel blog sites that best mimics actual

	Frequency of occurrence
travelblog.org/	14
travelpod.com/	8
blog.texasatravel.com/	7
blog.zanox.com/de/travel/	6
blog.realtravel.com/	6
reise-weblog.de/50226711/die_besten_travelblogs.php	5
statravel.at/cps/rde/xchg/at_division_web_live/hs.xsl/sta_travel_blogs.htm	5
statravelblog.ch/	5
helge.at/2008/02/travel2-in-oesterreich/	4
travelblog.ch/	4

**Table 2.2:** *Blog sites, which appeared most often in Google, mimicking actual search behavior*

search behavior of users and results in an appropriate list of blog sites for evaluation purposes. In order to mimic search behavior of users in Step 1 Google Trends is used to learn more about the most common keywords Internet users employ to search for travel blogs. Google Trends displays the most common search terms in the course of time. Thus, it allows comparisons between the search volumes of different terms on a specific day looking back to the year 2004. A comparison between the terms ‘trip’, ‘holiday’, and ‘travel’ revealed that most users search for the term travel. ‘Trip’ has only 16% and ‘holiday’ 62% of the search volume reached by the most wanted term ‘travel’. An interesting side aspect is that the seasonal peaks of searching for ‘travel’ are contrary to the peaks of the search term ‘holiday’. ‘Travel’ is searched for during the summer time, as well as at the beginning of a year, while people are interested in ‘holiday’ at the end of a year. In contrast the terms ‘blog’, ‘journal’, and ‘diary’ shows that most people search for the term ‘blog’, while ‘journal’ counts for 82% of the search volume of ‘blog’, and ‘diary’ is used only very rarely. The aggregated search volume for the terms ‘travel blog’ and ‘travelblog’ nearly doubled in the course of time. All these aspects bring us to the conclusion that a keyword combination of ‘travel’ and ‘blog’ would yield the most suitable results when searching for different categories of blogs (GoogleTrends, 2008, accessed on 2008/07/15). Thus, in Step 2, the most popular search engine Google (Hitwise, 2008; Webmasterpro\_Webanalyse, 2009) is used to search for the following combinations of search terms ‘travel blog’, ‘blog travel’, and ‘travelblog’. For each combination, the first two pages of results are used to gather all kinds of travel blog sites. Then, dead links and double entries are deleted. Hence, a sample of 68 blogs remained for further investigation, including commercial as well as non-commercial blogs. The ten blog sites, which appeared most often are presented in Table 2.2. Furthermore, 18% of the sites appeared three times, 34% twice and another 34% only once.

The categories defined by Herring et al. (2005) are the starting point for Step 3. A detailed examination of travel blogs is based on the description of blog genres presented in Table 2.1. Herring et al. (2005) defined the main purpose of a blog to be the basis for the categorization of k-logs, personal journals, filters, mixed blogs, and others. Based on the characteristics of each category (Table 2.1), a content analysis is carried out. Every blog site of the sample is accessed and examined by two coders in order to reveal if the categories and dedicated characteristics hold or if they need to be adapted, extended, or ignored. The two coders are jointly discussing all blog sites, hence, decisions upon each site are made together. The ultimate goal of this procedure is a categorization applicable to travel blogs, as well as the elaboration of characteristics describing each category. Based on the

	Tool or method used	Objective
Step 1	Google Trends	Find the most relevant keywords
Step 2	Search engine Google	Keyword search to detect travel blog sites
Step 3	Categorization proposed by Herring et al. (2005)	Adapt categorization, as well as dedicate characteristics, for the needs of travel blogs
Step 4	Characteristics just elaborated for travel blogs	Assign a sample of travel blogs to the established categorization catering to travel blog needs
Step 5	Criteria catalogue	Collect provided applications on travel blogs
Step 6	Contingency tables	Reveal which applications are predominantly provided and on which travel blog category

**Table 2.3:** *Research procedure to reveal a taxonomy for travel blogs*

characteristics elaborated for each travel blog category, the authors analyzed all 68 travel blogs again, in order to allocate the sites to the most appropriate travel blog category in Step 4. In two thirds of the sites the membership was clear-cut, for the rest of the blog sites the coders heavily discussed the cases and decided in favor of one category or if no compromise was found the site is put into a category called ‘others’. In Step 5, it was decided to further investigate a convenience sample of travel blogs whereas at least two blog sites of each category should be included. Furthermore, it was decided to ignore those blogs which cannot be assigned to one specific category in Step 4. Hence, a subsample of 20 travel blogs is used to reveal details about available applications, information about provided services, and about special features. This content analysis is based on a catalogue of criteria adapted from previous literature (Herring et al., 2005). Altogether 34 different features (including one criterion to gather special features) are considered whether they appear on a travel blog (coding=1) or not (coding=0). For the final step, Step 6, contingency tables are calculated to see if certain applications are especially particular for a certain travel blog category. An overview of the whole research procedure is given in Table 2.3.

## 2.4 Adaptation of blog categorization

Based on definitions and characteristics of proposed categories stipulated by Herring et al. (2005) and other authors (Blood, 2002; Krishnamurthy, 2002) respectively, a thorough analysis of the sites revealed that there is a need for adaptation of the categorizations in order to cater to the needs of travel blogs. In the following considerations concerning each category defined by Herring et al. (2005) as well as the final categorization for travel blogs are presented. Thereby, a rather comprehensive discussion of aspects subject to adaptation is provided while issues not subject to adaptation are presented more briefly because they are already discussed in the literature section.

### *K-logs*

As already mentioned k-logs convey expert knowledge and are likely to be restricted to a specific group of users. Concerning travel blogs, several questions emerge: How valuable information on travel blogs is? Are individual experiences and knowledge about trips expertise? A famous blog

website put it as follows: “[...] all the people [...] are experts in various places around the globe. Either they’re residents, or they used to live there [...] However, they achieved this level of knowledge, they’re experts on their destinations – and the best news is that they’re willing to share their expertise with you.” (BootsnAll-Travel, 2008, accessed on 12.03.2008). There is also evidence that people trust information on UGC (Burgess et al., 2009; Mack et al., 2008). Furthermore, it is revealed that all analyzed travel blogs can be accessed for free; only premium accounts impose a fee. Due to the fact that all travelers have access to the entire travel blogosphere it is assumed that all travel blogs are k-logs. Thus, it is decided that k-logs is an umbrella term which is true for all travel blogs and therefore, it is not a category as such.

#### *Personal journal*

Blogs that comprise entries in chronological order, that have entries at least every ten to eleven days, and for which only one author is all-dominant are called personal journals. Putting this in the context of tourism, the updates need to be seen a bit less stringent, since many travel diaries include several trips and holidays. Thus, updates are made more irregularly. Since most people travel in pairs or groups, this criteria should be eased as well. Hence, relaxing criteria mentioned in the literature, in the context of traveling, all weblogs which are written like a diary and which have two authors at most are classified as personal journals. Summarizing this means that the first travel blog category is labeled personal journal as well but is defined slightly differently.

#### *Filter*

Filters typically contain links to other websites that allow UGC in a more extensive form or provide further links and allow people to comment on it. Filters containing links and comments but also personal issues about the author/s are called mixed filters which are much more common than pure filters. The examination of the sample of travel blogs is in line with these findings. Therefore, filters are called and defined as mixed filters in the context of travel blogs.

#### *Mixed blogs*

As defined in the literature review mixed blogs is a category, which absorbs all blogs exhibiting characteristics of several categories (k-logs, personal journals, filters). However, the investigation of travel blogs revealed that there are further homogeneous groups within this category. The three exhibited groups are labeled news, guide, and rating: The first category contains travel blog sites which provide users with news. Rather often the entries are written by a group of exclusive authors, many times by journalists. The most important aspect is that beside short comments, users can not contribute to the content of such a blog. Novelties are often published as filters; however, the category news hardly links or does not link at all to other useful sites. The category guide is neither a personal journal nor a mixed filter. Blog entries in guides can be written by one or more authors. The main purpose is to provide the user with tips, tricks, and experiences which facilitate travel planning in all stages. The objective of so called rating sites is to evaluate restaurants, hotels, and all other kinds of tourism related products/services. Users are invited to report about experiences by distributing points in various forms (stars, smiley’s, or suns). Furthermore, users can get information about prospective destinations.

#### *Community*

Community is a type of travel blogs not provided by Herring et al. (2005) but for instance, by Krishnamurthy (2002). This category needs to be introduced in order to capture the whole picture of

<i>K-logs</i>	All travel blogs can be seen as knowledge blogs, thus k-logs is an umbrella term which is true for all kinds of travel blogs
<i>Personal journal</i>	<ul style="list-style-type: none"> <li>• Written like a diary</li> <li>• At most two authors are dominant</li> </ul>
<i>Mixed filter</i>	<ul style="list-style-type: none"> <li>• Collection of links concerning a specific topic</li> <li>• Linkage to other sites</li> <li>• Possibility to write comments</li> <li>• Some personal aspects about the authors</li> </ul>
<i>News</i>	<ul style="list-style-type: none"> <li>• Group of authors/journalists</li> <li>• Only short comments are allowed by users</li> <li>• Hardly any/no links to other relevant sites</li> </ul>
<i>Guide</i>	<ul style="list-style-type: none"> <li>• One or more authors</li> <li>• Tips, tricks, and experiences that facilitate travel planning</li> </ul>
<i>Rating</i>	<ul style="list-style-type: none"> <li>• Evaluation of restaurants, hotels, or tourism related products/services</li> <li>• Experiences in form of scales</li> <li>• Information about prospective destinations</li> </ul>
<i>Community</i>	<ul style="list-style-type: none"> <li>• Focus on community</li> <li>• Special applications that facilitate getting and staying in contact with other users</li> <li>• Platform that comprises all other categories</li> </ul>
<i>Others</i>	Blogs that are not applicable to any other category

**Table 2.4:** Description of blog categories in a travel context

different types of travel blog sites. A community in the present categorization allows users, after subscribing themselves, to establish their own blog. Hence, communities comprise personal journals. Moreover, communities often provide ratings, mixed filters, and the homepage occasionally includes news referring to topics relevant for travelers. In order to contact other travelers, communities offer a feature that enables inviting users to be one's friend. Thus, the category community comprises all categories mentioned before on one single platform and has a special focus on the community as such. Communities focus on the networking aspect between travelers. In order to attract as many travelers as possible these platforms provide users with various services such as templates for personal journals, news, tips and tricks or evaluations of hotels. These services result in the fact that all categories developed earlier are embedded in communities.

#### *Others*

As in other categorizations, there is a need for a category which includes all the rest not unambiguously classifiable. Thus, the sub-category 'others' includes all travel weblogs which are not applicable to any of the deduced categories mentioned in the context of travel blogs.

Table 2.4 depicts a summary of the just established travel blog categories as well as a summary of the characteristics detected for each category.

## 2.5 Assignment of blog sites to the categorization

The assignment to a specific category is not always clear cut. Especially personal journals and mixed filters are sometimes difficult to separate. Assignment difficulties arise since some sites, which look like mixed filters at first glance do not refer to other sites that allow UGC or include further links. This is especially true for travel news: While many travel blog sites refer to news agencies, others do not at all. Therefore, it needs to be assumed that the authors published the news themselves without referring to some other site and thus, such sites cannot be assigned to the category of mixed filters. Other sites offer content, which include terms that are programmed to be a link. Such links were revealed as connecting to different suppliers (e.g. hotels, flights) or to price-comparison search engines. Moreover, there are links that facilitate navigation within the same site. Travel blog sites that exhibit these characteristics are not categorized as mixed filters. Further assignment difficulties arise since some authors write in diary form, however, they use quite a lot of links to refer to other relevant sites. Finally, there are weblogs that deal with traveling; however, they also discuss topics not related to any trip. Here, sites which primarily focus on reporting personal experience are assigned to personal journals. For the present categorization, the main purpose of a blog was the crucial factor for assigning a site to one or the other category.

After a thorough investigation based on the characteristics just developed (2.4), 16 personal journals (23.5%) are identified. Thirteen blog websites (19.1%) are, in accordance with the characteristics, to be categorized as a mixed filter. The majority (29.4%) of all travel blog websites would belong to mixed blogs (Herring et al., 2005). However, as discussed earlier this category was replaced by three more homogenous categories: news, guide, and rating. The first group, news, accounted for 13.2%, the second, guide, for 4.4%, and the third group, rating, accounted for 8.8%. Furthermore, 19 (27.9%) travel blogs sites are identified as communities which are platforms that comprise all the other categories and focus on networking and relationships between users. A list of all links analyzed (n=68), as well as membership to the respective category, is presented in the Appendix.

## 2.6 Technical features

Based on the criteria defined above, a sub-sample is chosen as determined in the methodology section. The sample comprised six personal journals, two mixed filters, three news, two guides, two ratings, and five communities. Table 5 summarizes the results indicating if a certain technical feature is provided on all sites of a specific category (coding=1.00 for technical feature is provided on 100% of the sites analyzed) or only on a fewer percentage of sites (e.g. an RSS-Feed is available on 50% of the blog sites investigated belonging to the category rating).

The results indicate that there are some applications which are widely used (e.g. pictures, RSS-Feed, keyword search) but there are others, such as rating applications, which are only used by some blog categories. Based on Monte Carlo Simulation, significant differences between the categories could be found for the following technical features: Booking facilities (p-value=0.003), bookmarking (p-value=0.014), print function (p-value=0.037), forum (p-value=0.012), picture gallery (p-value=0.035), put in pins (p-value=0.014), and rate restaurants (p-value=0.024). As one can see in Table 5, most special features are provided by communities including guided tours, as well as trip planners, rewards, mobile applications, and different kinds of games. In order to tentatively



		Personal Journal	Mixed Filter	News	Guide	Rating	Community
<i>Navigation</i>	About/Purpose	0.67	0.50	1.00	1.00	1.00	0.80
	Keyword Search	0.83	1.00	1.00	1.00	1.00	1.00
	Sitemap	0.17	0	0	0	0.50	0.40
	Archive	1.00	0.50	0.67	1.00	0	0
	Editor's Picks	0	0	0	0	1.00	1.00
	Text Links	0	0	1.00	0	0	1.00
	Picture Links	0	0	0	0	0.5	1.00
	Tag Cloud	0	0.50	0.50	1.00	0	0.20
<i>Services</i>	Newsletter	0.33	0.50	0.33	0	0.50	0.80
	Online-Shop	0.17	0	0	0.50	0.50	0.60
	Booking-Facilities	0.17	0.50	0	1.00	1.00	1.00
	RSS-Feed	1.00	1.00	0.33	1.00	0.50	1.00
	Bookmarking	0.33	1.00	0.33	0	0	1.00
	Print Function	0	0	0.33	0	0.50	0.80
	Forum	0	0	0	0	0.50	0.80
<i>Multimedia</i>	Pictures	1.00	1.00	1.00	1.00	1.00	1.00
	Comment on	0.33	0.50	0.67	0.50	0.50	1.00
	Picture Gallery	0.33	0	0	0	1.00	0.80
	Slideshow	0	0	0.33	0	0	0.40
	Picture-Postcard	0	0	0	0	0.50	0.40
	Rate Picture	0	0	0	0	0	0.60
	Picture	0	0	0.50	0	0	0.20
	Camera	0	0	0	0	0	0.20
	Picture Wallpaper	0	0	0	0	0	0.20
	Videos	0.17	0	0.33	0	1.00	0.40
<i>Destination</i>	Color Countries	0	0	0	0	0	0.20
	Mark the Route	0	0	0	0	0	0.60
	Put in Pins	0	0	0	0	0.50	0.80
<i>Rating</i>	Hotel	0	0	0	0	0.50	0.60
	Restaurant	0	0	0	0	1.00	0.40
	Things to do	0	0	0	0	0.50	0.40
	Nightlife	0	0	0	0	0.50	0.40
	Experience	0	0	0	0	0	0.40
<i>Special Features</i>		List of W-Lan- connec- tions		Best Picture		Free Guide	Guided Tour, Travel-IQ, Rewards, Best Photo, Trip planner Mobile Blogging

Note: 1=application is provided on all blog sites of a specific category analyzed, 0=application is not provided on any site of a specific category analyzed. The darker the color of a cell in the table, the more of the analyzed sites in a specific category provide the mentioned application.

**Table 2.5:** Features provided on different travel blog categories

scrutinize the assignment of blogs based on features available a hierarchical cluster analysis applying Ward’s Method is used. The clustering procedure supports the assignment of 55% of the small sample of sites as expected.

2.7 Discussion and conclusion

Results show that there is a need for adapting general classification schemes to a certain topic (here: travel blogs). Based on the characteristics of blog categories proposed by Herring et al. (2005) travel blog sites are analyzed in order to adapt the systematic description of characteristics of general blog genres for the context of traveling.

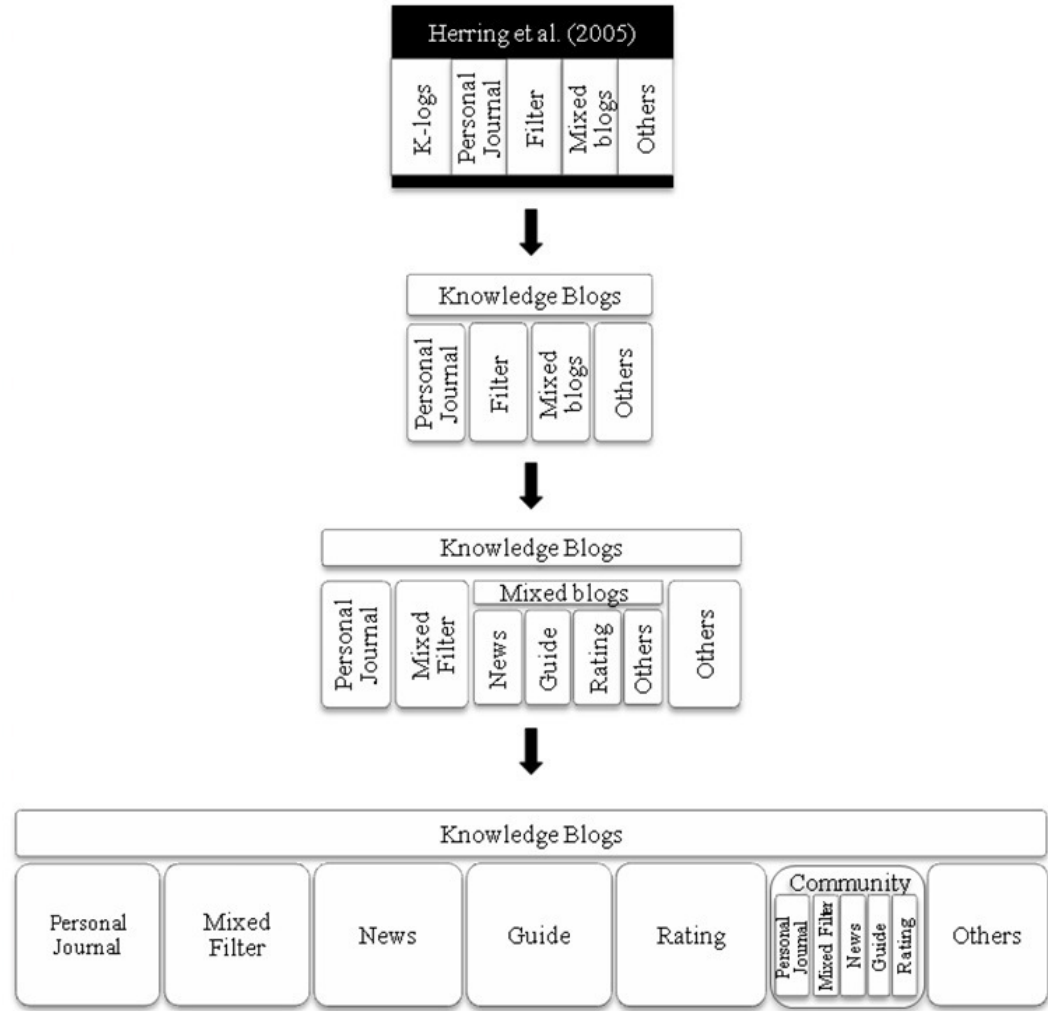


Figure 2.1: Categorization adaptation procedure to reveal a taxonomy for travel blogs

Figure 2.1 presents the procedure of adaptation as well as the final categorization. As shown in this study, k-log is an umbrella term suitable for all travel blogs because access is free, all bloggers are seen as experts, and users trust information posted on these sites (BootsnAll-Travel, 2008; Burgess et al., 2009; Mack et al., 2008). As with Herring et al. (2005), there is a category called personal

journals, but the characteristics are slightly relaxed. Previously called filters are called mixed filter to take into account that there are hardly any filters in their purest form. In the purest form, filters focus primarily on links and are intended to show the user around the web, and short comments of bloggers are included. Mixed filters additionally allow indicating some personal aspects about the authors. However, there is no longer a category called mixed blogs because in a travel context this group contains three more homogeneous groups of travel blogs labeled news, guide, and rating. The first category is mainly published by journalists and the common user can only post short comments. The purpose of guides is to facilitate travel planning by providing tips, tricks, and personal experiences. Ratings provide users with scales, which allow them to evaluate accommodations or other travel related products/services. Thus, users get information in the form of ratings. A category, not proposed by Herring et al. (2005) but by other authors (Krishnamurthy, 2002), called community is introduced. This group takes into account platforms that comprise all the other categories and which focus on the community as such. Furthermore, the final taxonomy includes a category 'others' which comprises all travel blogs which do not fit into any other category.

The present chapter further investigates technical features provided on travel blog sites. Results indicate that for some features there are significant differences between travel blog categories. Personal journals and news usually do not provide booking facilities. Bookmarking is very common on community and mixed filter sites. Furthermore, a significant difference could also be found for the print function, whereas communities offer this function most frequently. Forums can be found on communities but also on rating sites, while picture galleries are provided by communities and personal journals. There are also significant differences concerning the availability of highlighting visited destinations by putting in pins, as well as of a function which allows users to rate restaurants. Finally, communities not only provide most applications concerning navigation, services, multimedia, highlighting visited destinations, and rating but they also offer the most special features including applications for mobile blogging and games. The proposed travel blog classification, in conjunction with elaborated characteristics, assists researchers in two ways: First, it facilitates determining whether research based on specific travel blog sites that has already been published is comparable or not. Second, it supports researchers in selecting certain type/s of travel blogs for future surveys.

Furthermore, the proposed travel blog classification aides website designers and travelers, as well as tourism managers: Web designers can more precisely decide which category they want to program for whom. Moreover, the overview of technical features offered by each category can be used to decide on which applications need to be provided for one category and which applications can be provided as a kind of supplement not usual for a specific category. If users search for travel blogs, search engines could narrow down the search results by suggesting that users select the category they actually want to base their information search on. Hence, users would get more accurate results depending on whether they are searching for rating sites, news, or any of the other categories. Knowing which categories of travel blogs exist, as well as detailed descriptions of these categories, assist managers in being more precise deciding which category is most adequate in reaching a target group. Furthermore, it assists managers in deciding where to get information about a specific target group or about requirements of the market in general. Hence, decisions concerning accessing one's target group might be facilitated. Finally, managers can more easily decide which platforms should be monitored, for instance, hotels might be mainly interested in monitoring travel blog sites belonging to the category community (Xiang and Gretzel, 2009).

**Limitations and future research**

The survey at hand is a starting point for further investigations. In a next step, a bigger sample should be used in order to evaluate the travel blog categorization at hand. Furthermore, a bigger sample is necessary to reveal if certain categories provide the same kind of technical features as indicated by present results. Next, technical features which are most suitable in terms of discrimination between travel blog categories need to be identified. Then travel blog websites could be collected automatically and based on the applications discriminating best between categories, would allow for an automatic categorization of travel blogs in the future.

## Appendix

### Links of travel blogs assigned to the respective category

<i>Personal journal</i>	<a href="http://blog.sofasurfer.ch/dasblog/">http://blog.sofasurfer.ch/dasblog/</a> <a href="http://erdling.org/">http://erdling.org/</a> <a href="http://marcellomedia.blogs.com/mrb/travel_events/index.html">http://marcellomedia.blogs.com/mrb/travel_events/index.html</a> <a href="http://nixon.travel--blogs.de/">http://nixon.travel--blogs.de/</a> <a href="http://sacred--destinations.blogspot.com/">http://sacred--destinations.blogspot.com/</a> <a href="http://suncollector.blogspot.com/search?q=">http://suncollector.blogspot.com/search?q=</a> <a href="http://trapa.twoday.net/">http://trapa.twoday.net/</a> <a href="http://www.helge.at/category/travel/">http://www.helge.at/category/travel/</a> <a href="http://vagabonding.com">http://vagabonding.com</a> <a href="http://travelog.marcel--more.de/">http://travelog.marcel--more.de/</a> <a href="http://hasbrouck.org/index.html">http://hasbrouck.org/index.html</a> <a href="http://www.travelblog.de/">http://www.travelblog.de/</a> <a href="http://www.travel--location--blog.com/">http://www.travel--location--blog.com/</a> <a href="http://blog.21publish.com/Alexander--P">http://blog.21publish.com/Alexander--P</a> <a href="http://www.hobotraveler.com/blogger.html">http://www.hobotraveler.com/blogger.html</a> <a href="http://greektravel.com">http://greektravel.com</a>
<i>Mixed filter</i>	<a href="http://blog.zanox.com/de/travel/">http://blog.zanox.com/de/travel/</a> <a href="http://sabines--travelblog.blogspot.com/">http://sabines--travelblog.blogspot.com/</a> <a href="http://blog.austriatourism.com/">http://blog.austriatourism.com/</a> <a href="http://www.webflyer.com/blog">http://www.webflyer.com/blog</a> <a href="http://www.reise--weblog.de/">http://www.reise--weblog.de/</a> <a href="http://www.ajc.com/travel/content/custom/blogs/travel/">http://www.ajc.com/travel/content/custom/blogs/travel/</a> <a href="http://kaltaquise.blogspot.com/">http://kaltaquise.blogspot.com/</a> <a href="http://www.streunr.com/tag/travelblogch/">http://www.streunr.com/tag/travelblogch/</a> <a href="http://www.wandalust.com/">http://www.wandalust.com/</a> <a href="http://travelwriters.blogspot.com/">http://travelwriters.blogspot.com/</a> <a href="http://www.travelwebdir.com/travelblog/">http://www.travelwebdir.com/travelblog/</a> <a href="http://www.tripzs.com/">http://www.tripzs.com/</a> <a href="http://www.mietwagen--blog.com/">http://www.mietwagen--blog.com/</a>
<i>News</i>	<a href="http://onlinetravelreview.com">http://onlinetravelreview.com</a> <a href="http://blog.globaltravelnews.net/">http://blog.globaltravelnews.net/</a> <a href="http://www.ferientips.com/">http://www.ferientips.com/</a> <a href="http://ullaegino.blogspot.com">http://ullaegino.blogspot.com</a> <a href="http://blogs.nypost.com/travel/">http://blogs.nypost.com/travel/</a> <a href="http://blog.texasrvtravel.com/">http://blog.texasrvtravel.com/</a> <a href="http://www.thelongtriphome.com">http://www.thelongtriphome.com</a> <a href="http://travelblog.viator.com/">http://travelblog.viator.com/</a> <a href="http://www.worldhum.com/">http://www.worldhum.com/</a>
<i>Guide</i>	<a href="http://www.bugbog.com">http://www.bugbog.com</a> <a href="http://www.travelblogs.com/">http://www.travelblogs.com/</a> <a href="http://www.vietnamblogtravel.com/">http://www.vietnamblogtravel.com/</a>
<i>Rating</i>	<a href="http://tripadvisor.com">http://tripadvisor.com</a> <a href="http://trustedplaces.com">http://trustedplaces.com</a>
<i>Community</i>	<a href="http://getjealous.com">http://getjealous.com</a> <a href="http://iloho.com">http://iloho.com</a> <a href="http://mytripjournal.com">http://mytripjournal.com</a> <a href="http://VirtualTourist.com">http://VirtualTourist.com</a> <a href="http://wayn.com">http://wayn.com</a> <a href="http://www.travelblog.org">http://www.travelblog.org</a> <a href="http://www.travelpod.com/">http://www.travelpod.com/</a> <a href="http://www.travbuddy.com/">http://www.travbuddy.com/</a> <a href="http://www.lonelyplanet.com/blogs">http://www.lonelyplanet.com/blogs</a> <a href="http://www.igougo.com">http://www.igougo.com</a> <a href="http://www.statravelblog.ch/">http://www.statravelblog.ch/</a> <a href="http://blog.realtravel.com/">http://blog.realtravel.com/</a> <a href="http://blogs.bootsnall.com/">http://blogs.bootsnall.com/</a> <a href="http://travelblog.com/">http://travelblog.com/</a> <a href="http://tumi.com/">http://tumi.com/</a> <a href="http://travellersconnected.com">http://travellersconnected.com</a> <a href="http://www.travel--blogger.de/">http://www.travel--blogger.de/</a> <a href="http://mylifeoftravel.com">http://mylifeoftravel.com</a> <a href="http://www.travel--podcast.eu/">http://www.travel--podcast.eu/</a>
<i>Other</i>	<a href="http://www.beans--around--the--world.com">http://www.beans--around--the--world.com</a> <a href="http://2ndtravel.blogspot.com/">http://2ndtravel.blogspot.com/</a> <a href="http://blog.travelinlove.com/">http://blog.travelinlove.com/</a> <a href="http://www.djwv.org/">http://www.djwv.org/</a> <a href="http://www.baliblog.com/">http://www.baliblog.com/</a> <a href="http://www.quietamerican.org/vacation.html">http://www.quietamerican.org/vacation.html</a>

**Table 2.6:** Links of travel blogs assigned to the respective category (ad Study 1: Taxonomy of travel blogs)

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## **Part II**

# **Demand side: Insights into travelers' design needs**



## CHAPTER 3

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### Relationship between motivation and website features: Do adventure and relaxation seeking travelers differ? An exploratory approach

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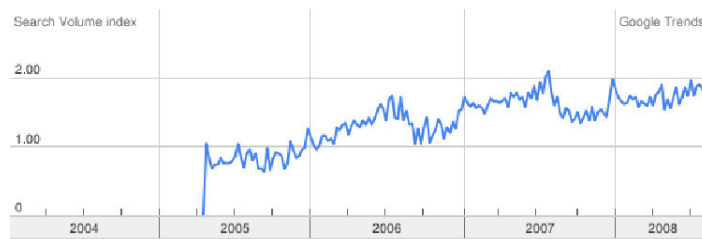
In this chapter the Partial Least Square Method (PLS–SEM) is used to assess the relationship between the importance of website features and motivational factors for reading blog entries, including the factors reduce risk, time saving, reliable information, authentic information, trip and preparation tools, and fun and social contact. Results indicate that only a few motivational factors are essential antecedents for the perceived importance of certain website features. Moreover, it has been shown that the influence of motivational factors on the importance of website features differs between travelers who seek relaxation and those who seek adventure.

*Keywords:* Motivation for eWOM, sensation seeking, website features, tourism websites.

### 3.1 Introduction

Blogs are personal online diaries and an increasing number of travelers are prepared to use blogs as a source of information, to post their own experiences and to communicate with other travelers or tourism suppliers. Figure 3.1 presents the Search Volume index for the keyword ‘travel blog’ and shows that the average amount of searches for this keyword has been increasing steadily (Google-Trends, 2008, accessed on 05.09.2008).

For the tourism supply side it is vital to profile blog–users’ demographics, as well as to understand the motivating factors behind using blogs as an information source. Gretzel and Park (2007) found that among 7,000 individuals about half of them always read customer reviews during the course of trip planning, and more than one third read reviews regularly or at least very often. Travelers use travel blogs mainly to get ideas (63.7%) and to narrow down choices (64.7%) before they make a travel decision (Gretzel and Park, 2007). According to Fodness (1994) knowledge about motivational factors



**Figure 3.1:** Search Volume index for the keyword 'travel blog' (Google Trends, 2008)

is needed to develop products, images, promotional activities, and to evaluate services. Previous research has focused on tourist motivations in general (Kozak, 2000, e.g.), on motives for reading and writing blogs in tourism (Gretzel and Park, 2007, e.g.), and on motivational differences between webloggers and videobloggers (Stöckl et al., 2006). However, regarding differences between users of one genre (community type of travel blogs), literature does not discriminate motivational factors for reading blog entries depending on different user groups. The aim of this paper is thus, to contribute to the discussion on motivational differences of users based on the degree of sensation seeking, i.e. comparing high and low sensation seeking travelers.

## 3.2 Theoretical background

### 3.2.1 Sensation seeking

Sensation seeking is defined as the degree of physical, legal, and/or financial risks people are prepared to take during their vacation (Zuckermann, 1994). High sensation seekers prefer exotic places and do not book all travel-related features in advance. The reason for this is that they desire to change decisions optionally during the journey (Litvin, 2008). They do not search for particular things and are not greatly concerned with things that happen (Anderson, 1970). Low sensation seekers want to be prepared and do not want any surprises arising while they are traveling. They prefer to travel to well known places (Zuckermann, 1994), seek security, and predictability (Mayo and Jarvis, 1981). Concerning the need for variety, low sensation seekers search for change rather than for novelty (Mayo and Jarvis, 1981). Sensation seekers also tend to prefer non-adventurous activities like visiting bars (Pizam et al., 2004). However, the level of sensation seeking of a person can change over time, though it is said to be rather consistent over a certain range of behavior/activities (Huth-Bocks, 1996). In the field of tourism, sensation seeking has been examined quite often; for example, Pizam et al. (2004) published an article in which a wide range of studies examining this concept was summarized.

If website designers know their users need for excitement they can tailor their promotional activities to the websites in order to achieve an optimal design for each user group.

### 3.2.2 Website design

Users increasingly require that their information inquiries are effectively and successfully completed. Thus, the interface must translate features and operations of a system in a clear way. User satisfaction is a measure for the perceived quality of the interface and it is the most important measure for system usability (De Marsico and Levialdi, 2004). Usability is defined as the “*extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified*

*context of use*" (ISO, 1992). An Information System (IS) is designed to support users with problems. By using an IS, people apply different kinds of strategies depending on their knowledge, their experience, as well as on their learning style (De Marsico and Levialdi, 2004). Users searching for information have amplified goals and needs. Often they already have a certain idea of what they are looking for, but rather often they are not able to explicit it. An IS has to take into account all these aspects, however, to be successful, the time to access the most valuable information needs to be minimized (Nielsen, 1999).

A website designer has to focus on the needs of a target group (Sullivan, 1997). The design of a website should satisfy usability and content requirements of its users (Di Mascio and Tarantino, 2003; Schaupp et al., 2006). Traditionally, design is subdivided into three categories: information presentation and appearance, access–navigation–orientation, and informative content architecture (De Marsico and Levialdi, 2004). All design issues need to be consistent with the users' objectives. Hence, only content, which is relevant to the targeted group should be offered. Then, the design and visual presentation needs to be realized according to the users' needs (Visciola, 2003). In this context, each element on a website has an influence on users' attention, and facilitates navigation (Nielsen, 1999; Levi, 2008).

Generally, one can say the closer the site architecture is to the mental model of the user, the higher the users' satisfaction. The same is also true for the features offered (Norman, 2002). Many authors discuss design and evaluation guidelines (Nielsen, 1999; Shneiderman and Hochheiser, 2001; Shneiderman, 2003; Visciola, 2003, e.g.). Others also investigate cultural differences (Marcus, 2002). According to Raskin (1999), a website has to account for different senses (ergonomic aspects), as well as for emotional, and effective response (cognitive aspects). Different information formats (text, audio, and video) support different learning styles. Graphical elements have different purposes, i.e. supporting the interpretation of the content, combining, or replacing textual links. Additionally, graphics may have a purely aesthetical role (Reed, 2000). Gestalt laws specify how to group or separate visual elements (Card et al., 1999). Website designers need to be aware of the fact that users interpret website elements based on their physiological and psychological factors. In doing so, it is important that the website elements do not communicate wrong meanings to the users (Mandel, 2002).

In this context, eye-tracking studies, as well as other kinds of observations (e.g. facial and expression movements) may give important insights into understanding users' behavior. Very often usability and other aspects (e.g. attractiveness, enjoyment, and informativeness) are surveyed by using questionnaires (Davis, 1989; Novak et al., 2000; Barnes and Vidgen, 2000, e.g.). However, since the expressed satisfaction might not match actual behavior netnography (a term that refers to ethnography adapted to the Internet) might reveal more truthful information (Kozinets, 1998, 2002, 2006; Langer and C., 2005; Beckmann and Langer, 2005). However, the main disadvantages of observation techniques are that they usually are very complex, time consuming, and one needs an adequately equipped laboratory.

Since the complexity of users' objectives increases steadily and the number of available functionalities for websites increases as well, the idea to satisfy all users at the same time ends up in satisfying nobody at all (Perfetti, 2001). One approach to avoid this is proposed by Goodwin (2005): Archetypes called 'personas' are identified and addressed as they have the same goals, behavior patterns, and skills. Abels et al. (1998) recommend a user-based design where the requirements of the users, which are revealed for example by conducting interviews, guide the design. The user-centered design

first identifies different types of users and describes their requirements, which result in so-called ‘perspectives’. In a second step, these ‘perspectives’ are the input for the website design (De Troyer and Leune, 1998).

### 3.2.3 Motivational factors for electronic word of mouth

Generally speaking, electronic word of mouth (eWOM) is informal communication and occurs in user generated content (UGC) which is published by the user him/herself and not by a professional editor (Hennig-Thurau et al., 2004). One means of UGC are blog entries whereby Chau et al. (2002) found that if a website is attractive enough, to blog or not to blog depends on the individual’s motivation and attitude. Thus, the targeted user group determines which applications should be offered on a website. This allows the development of long-standing communities of shared interests and sub-cultural identification (Schmidt, 2007). Hennig-Thurau and Walsh (2003) found that people use eWOM mainly to save decision-making time and to make better buying decisions. By using open-ended questions, Bailay (2005) found that the three main motivators to read blogs are the desire to use an additional source of information (35.5%), the need for assurance of a purchase done (27.6%), and the wish to know what other consumers think (17.0%). According to Goldsmith and Horowitz (2006), the motives for searching opinions online are risk reduction, pre-purchase information, simplicity at finding information, and finding low prices. Stöckl et al. (2006) revealed that video production is associated with fun but weblogging is seen as more informative. A study conducted by Gretzel and Park (2007) revealed that the main reasons for reading travel blogs are to find out more about where to stay (77.9%), where to eat (33.6%), and what to do (32.5%). Creative expression and documentation of personal experience are among the main motivational factors according to other surveys but also meeting and influencing other people (Lenhart and Fox, 2006; Nardi et al., 2004). Deduced from motivational concepts relevant for traditional word of mouth, Hennig-Thurau et al. (2004) revealed that three motives influence the frequency of visiting a consumer’s platform. These are social benefits, extraversion/positive self-enhancement, and concern for other consumers.

The present study contributes to the field of research in two ways. First, it investigates if motivational factors for reading travel blog entries positively influence the importance of website features. Second, it analyses if the motivational factors for high sensation-seekers (further on called: adventure-seekers) and low sensation-seekers (further on called: relaxation-seekers) influence the perception of the importance of website features differently. Thus, the research questions addressed are:

*Research question 1: Which motivational factors for reading blog entries have an impact on the importance of website features?*

*Research question 2: Which motivational factors for reading blog entries have an impact on the importance of website features of adventure-seekers compared to relaxation-seekers?*

## 3.3 Methodology

Based on studies by Hennig-Thurau and Walsh (2003); Hennig-Thurau et al. (2004) and Goldsmith and Horowitz (2006) a questionnaire with six motivational concepts for reading blog-entries was

developed. The items were adapted and supplemented for the purpose of this study. Additional items were added based on the results of the study report by Gretzel and Park (2007). The questionnaire comprised 19 items dealing with motivations for reading blog-entries. Table 3.1 gives an overview of the items used.

Based on a collection of website features on travel blog platforms, 16 items were included to measure the importance of website features. Motivational items, as well as importance of website feature items are measured on a 5-point Likert-scale (1=strongly disagree to 5=strongly agree).

In order to avoid fatigue of the respondents, none of the often used scales to measure sensation seeking (Zuckermann, 1996; Hoyle et al., 2002) were used. Instead, individuals were asked to indicate if they are more adventure- or more relaxation-seeking twice: once referring to their last holiday and once referring to most of their journeys (10-point rating scale; 1=rest seeking to 10=adventure seeking), thereby considering that the level of sensation seeking might vary over time. The final questionnaire also included questions on demographics and questions to levy their knowledge of the Internet. The online questionnaire was finally sent to students of the Vienna University of Economics and Business Administration.

### Sample characteristics

In total, 276 questionnaires were usable for the purpose of this study. Regarding the sample, 35.1% were male and 64.9% were female. Concerning blog usage, 158 persons read travel blog entries while searching travel information and 62 persons posted on travel blog platforms before. However, from the people who read travel blog entries, nearly 80% do this only occasionally to rarely while from the people who write travel blogs, 83.9% post blog entries only occasionally to rarely. The sample reflects the importance of the Internet as a source of travel information due to the fact that 35.1% state that they always use the Internet for searching travel information. 34.4% of the respondents use the Internet often, 22.1% sometimes, 7.2% rarely, and 1.1% state that they never use the Internet to search for travel information. Concerning travel motivation, the sample consists of 89 relaxation-seekers and 187 adventure-seekers. The sample of blog entry readers comprises 45 relaxation-seekers and 113 adventure-seekers.

## 3.4 Analysis

An exploratory Principal Component Analysis (PCA) was carried out in order to find out if the motivational factors load on the concepts. The Kaiser Eigenvalue criterion of 1.0 was used as a minimum to determine the number of components (Zwick and Velicer, 1984). As expected, six factors could be identified explaining 63.9% of variance. However, the items were allocated to the concepts in a slightly different way than it is shown in Table 3.1. Therefore, the concepts were relabeled with appropriate names (Table 3.2).

Pett et al. (2003) suggest a cut-off for the factor loadings at 0.4. For the present study, a cut-off value of 0.6 was specified. The analysis revealed that five items could not meet this criterion and therefore these items were removed one by one when repeating the analysis. Table 3.2 presents the factor loadings after all 5 items have been removed. Due to the exclusion of these five items an



Construct	Item: ‘I read travel blog entries because ...’	Reference
<i>Reduce risk</i>	... the chances of making a bad decision are reduced. ... it helps me avoid a risky decision. ... I can hear from people who have already taken a trip. ... I want to make sure a trip is worth taking.	Goldsmith et al.(2006) Goldsmith et al. (2006) Goldsmith et al. (2006) Goldsmith et al. (2006)
<i>Time saving</i>	... here I get information about the destination faster than elsewhere. ... one saves a great deal of time when informing oneself on such sites.	Henning–Thurau et al. (2003) Henning–Thurau et al. (2003)
<i>Reliable info</i>	... I get information from someone who is not trying to sell me something. ... I have not found sufficient information in other sources of information. ... I get special tips on what to see and do in a destination. ... I want something more than travel service providers are offering.	Goldsmith et al. (2006) Gretzel et al. (2007)* Henning–Thurau et al (2004) Gretzel et al. (2007)*
<i>Authentic info</i>	... I can watch authentic videos of the destination. ... I can look at authentic photos of the destination. ... I can read authentic reviews, journals, reports of the destination.	Gretzel et al. (2007)* Gretzel et al. (2007)* Gretzel et al. (2007)*
<i>Trip preparation tools</i>	... I can use trip planning, which makes it easier to prepare my trip. ... I can compare prices, destinations, hotels.	Gretzel et al. (2007)* Gretzel et al. (2007)*
<i>Fun and social contact</i>	... trip planning is fun. ... I can connect with locals that way. ... I can connect with other travelers. ... I enjoy reading travel blog entries.	Gretzel et al. (2007)* Gretzel et al. (2007)* Gretzel et al. (2007)* Gretzel et al. (2007)*

\* Adopted from the results of the study report by Gretzel et al. (2007)

**Table 3.1:** Items and motivational constructs used to reveal differences between adventure– and relaxation–seekers

Factors and items	Factor loadings	**Factor loadings
<b>Factor 1: Reduce risk of decision</b>	$\alpha = 0.771$	$\alpha = 0.771$
...the chances of making a bad decision are reduced (1)***	0.700	0.853
...it helps me avoid making a risky decision (2)***	0.887	0.917
<b>Factor 2: Reliable information</b>	$\alpha = 0.667$	–
...I can hear from people who have already taken a trip (3)***	0.761	0.781
...I get information from someone who is not trying to sell me things (4)***	0.588*	–
...I can read authentic reviews, journals, reports of the destination (5)***	0.503*	–
<b>Factor 3: Time saving &amp; use of trip preparation tools</b>	$\alpha = 0.713$	$\alpha = 0.683$
...I want to make sure a trip is worth taking (6)***	0.500*	–
...here I get information about the destination faster than elsewhere (7)***	0.763	0.803
...one saves a great deal of time when informing oneself on such sites (8)***	0.758	0.781
...I can use trip planning, which makes it easier to prepare my trip (9)***	0.428*	–
...I can compare prices, destinations, hotels (10)***	0.691	0.702
<b>Factor 4: Supplementary information</b>	$\alpha = 0.663$	$\alpha = 0.663$
...I haven't found sufficient information in other sources (11)***	0.766	0.687
...I get special tips on what to see and do in a destination (12)***	0.768	0.818
...I want something more than travel service providers are offering (13)***	0.728	0.781
<b>Factor 5: Authentic information</b>	$\alpha = 0.723$	$\alpha = 0.723$
...I can watch authentic videos of the destination (14)***	0.760	0.856
...I can look at authentic photos of the destination (15)***	0.805	0.823
<b>Factor 6: Social contact &amp; fun</b>	$\alpha = 0.631$	$\alpha = 0.657$
...trip planning is fun (16)***	0.465*	–
...I can connect with locals that way (17)***	0.753	0.764
...I can connect with other travelers (18)***	0.771	0.833
...I enjoy reading in the travel blog (19)***	0.638	0.638
<b>Variance explained</b>	<b>63.876%</b>	<b>73.826%</b>

\* Not included in further calculation due to factor loadings lower than 0.6.

\*\* Factor loadings after the exclusion of the five items which could not fulfill the 0.6 cut-off criterion.

\*\*\* Numbers indicate the particular items in the PLS model.

**Table 3.2:** Exploratory PCA: Motivational factors for reading blog entries

Factors and items	Factor loadings	Factor loadings
<b>Factor 1: Social contact &amp; additional information</b>	$\alpha = 0.783$	$\alpha = 0.789$
Connecting with locals (important 10)**	0.763	0.769
Meeting travel buddies (important 11)**	0.838	0.843
Creating your own map (important 12)**	0.538*	–
Subscription to a newsletter (important 13)**	0.723	0.730
Traveler forum (important 14)**	0.618	0.646
<b>Factor 2: Convenient online tools</b>	$\alpha = 0.802$	$\alpha = 0.802$
Interactive trip planner (important 3)**	0.661	0.679
Special deals (important 7)**	0.787	0.783
Comparing prices (important 8)**	0.708	0.729
Booking (important 9)**	0.817	0.821
<b>Factor 3: Information in all formats</b>	$\alpha = 0.702$	$\alpha = 0.744$
Videos (important 1)**	0.398*	–
Photos (important 2)**	0.682	0.637
Destination description (important 15)**	0.816	0.852
Attraction description (important 16)**	0.868	0.878
<b>Factor 4: Quantity of information</b>	$\alpha = 0.799$	$\alpha = 0.799$
Number of users (important 4)**	0.806	0.800
Number of reviews (important 5)**	0.899	0.899
Rating of reviews (important 6)**	0.780	0.794
<b>Variance explained</b>	<b>63.587%</b>	<b>68.894%</b>

\* Not included in further calculation due to factor loadings lower than 0.6.

\*\* Numbers indicate the particular items in the PLS model.

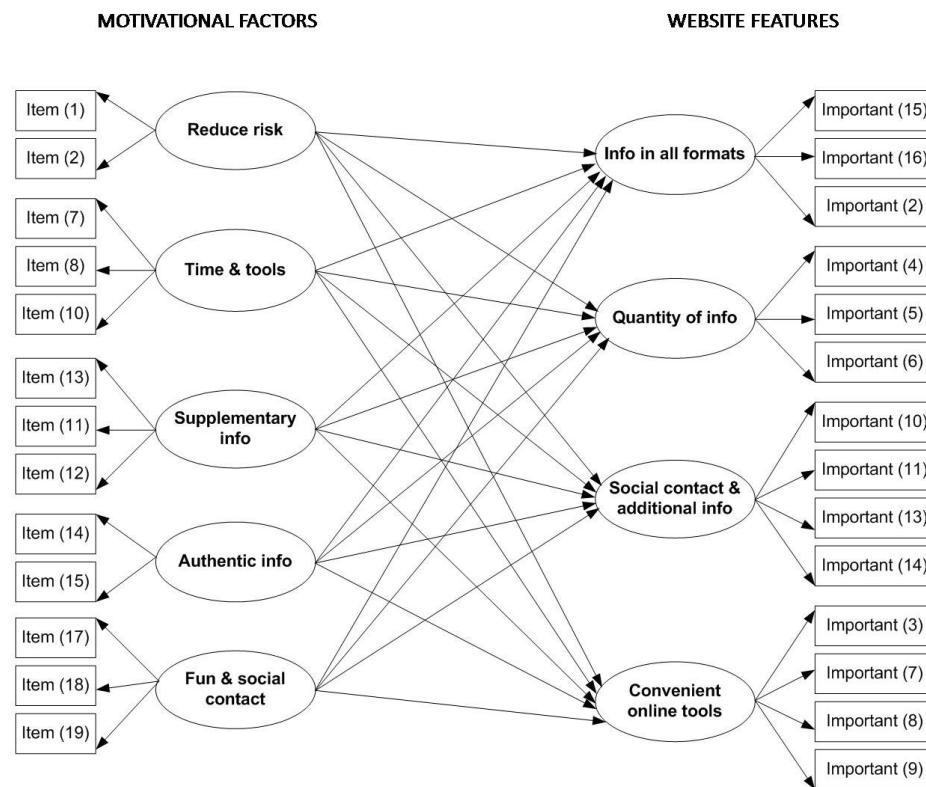
**Table 3.3:** *Exploratory PCA: Importance of website features*

increased amount of variance (i.e. 73.8%) can be explained. Then, not the 14 but the remaining 13 items were analyzed using SmartPLS (Ringle et al., 2005). One additional item had to be removed because Factor 2 ‘reliable information’ was explained by one item only and therefore it was excluded from further analyses.

A second exploratory PCA was used to find underlying factors of 16 items measuring the importance of website features. The same procedure and margins were applied as in the first PCA for motivational factors. Table 3.3 shows that the variance explained could be increased to 68.9% by excluding two items which did not fulfil the 0.6 cut-off criterion.

Based on these results, a conceptual causal model was developed to examine the direct positive influence of the five motivational factors on the importance of the four groups of website features (Figure 3.2). As Figure 3.2 presents, in the conceptual causal model the author starts with the assumption that all motivational factors for reading blog entries influence all factors of website features. In the following, the model will be optimized, i.e. significant impacts will be revealed.

The Partial Least Squares Method (PLS–SEM) is used to calculate the model applying SmartPLS. SmartPLS is a software application for path modeling with latent variables (Ringle et al., 2005). Compared to Covariance Structural Equation approaches (CBSEM) the component based PLS estimation requires no specific data–distribution and can be used with small samples. Moreover, PLS is suitable for explaining complex relationships where theory is still being developed (Wold, 1985, 1989; Fornell



Note: The corresponding items of 'item 1–19' are shown in Table 3.2. The corresponding items of 'important 2–16' are shown in Table 3.3.

**Figure 3.2:** Conceptual causal model used as a starting point for PLS-SEM calculations

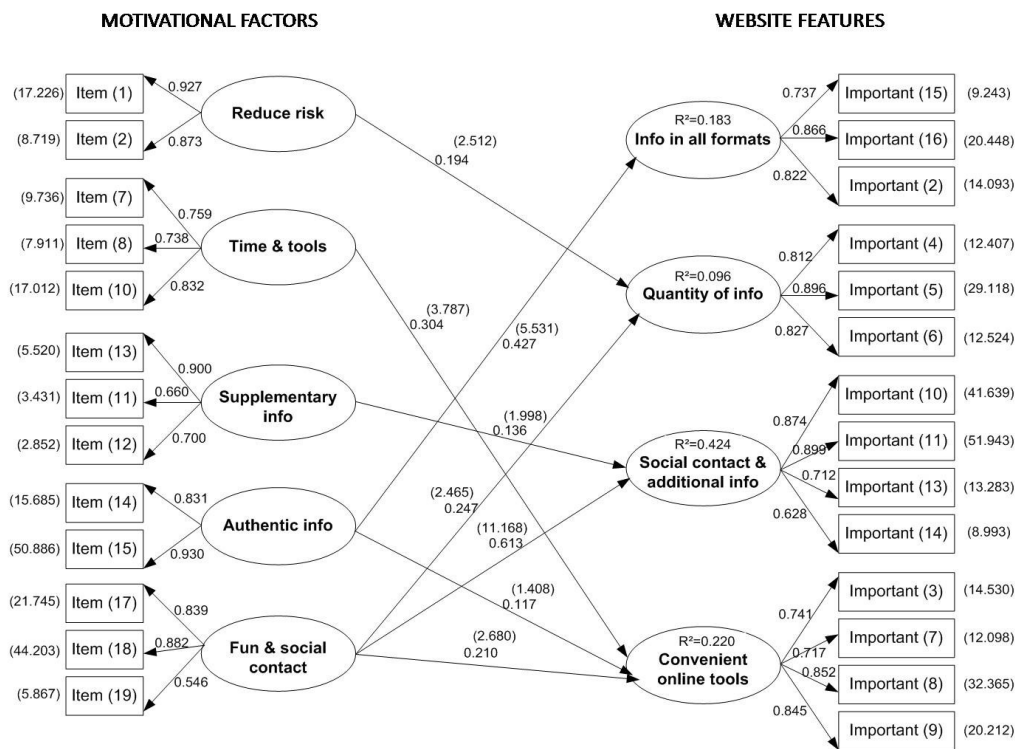
and Bookstein, 1982; Chin, 1997), which is true for the present study. Therefore, here PLS-SEM is more appropriate than CBSEM. To calculate the significance of the structural coefficients, the bootstrapping method is used (Efron and Gong, 1983).

### 3.5 Results

There are two steps of data analysis: In a first step, the most appropriate model is identified based on the proposed conceptual causal model. In a second step, differences between adventure- and relaxation-seekers are estimated. The sample of 158 respondents who read travel blogs was used to appear the final, most appropriate model applying a stepwise procedure: Paths with the least significance were removed one by one as the analysis was repeated. To calculate t-values, 200 samples were drawn each containing 158 cases applying the bootstrapping procedure.

Figure 3.3 shows the most appropriate model. It shows the motivational factors and their influences on the importance of website features which are significant based on the whole sample of blog readers. This model explains 42% of the variance of the website feature 'social contact & additional info', 22% of 'convenient online tools', 18% of 'info in all formats', and 9% of 'quantity of info'. The motivational factor 'fun & social contact' directly influences the importance of website features of three factors, i.e., 'info in all formats', 'quantity of info', and 'convenient online tools'. Three motivational factors

(‘reduce risk’, ‘time & tools’, ‘supplementary info’) directly influence one factor of importance of website features each: ‘Reduces risk’ ‘quantity of info’, ‘time & tools’, ‘convenient online tools’, and ‘supplementary info’, ‘social contact & additional info’. ‘Authentic info’ directly influences two factors of importance of website features. However, the influence on ‘convenient online tools’ is not significant. It was necessary to keep this insignificant path to retain the structural equation system as presented.



Note: T-values are presented in parentheses.

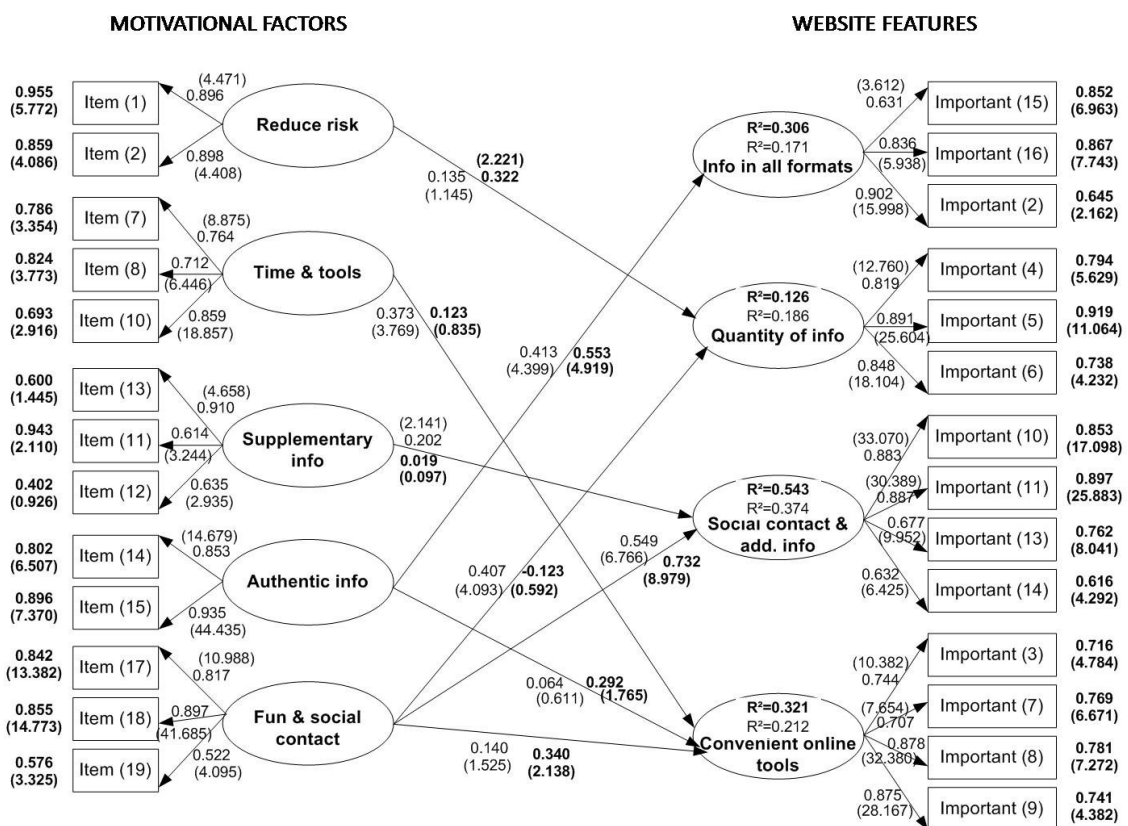
**Figure 3.3:** Most appropriate causal model: Significant influences of motivational factors on the importance of website features based on the whole sample of blog readers.

The measurement of Internal Consistency (IC), average variance extracted (AVE) and composite reliability (CR) resulted in the values presented in Table 3.4. The levels of acceptable fit are: AVE > 0.5, CR > 0.5, and IC > 0.7 (Fornell and Larcker, 1981). The figures show that most of them meet the recommended thresholds, showing that the model fits the data. The IC of ‘supplementary info’ and ‘time & tools’ is only slightly below the recommended thresholds listed above.

In a second step, the model which has just been estimated (further on called ‘most appropriate model’) was used to find differences between adventure- and relaxation-seeking travelers. Therefore, the model is calculated again, twice. First, the model is calculated based on the sample including relaxation-seekers ( $n=45$ ) only and then based on the sample which consists of adventure-seekers ( $n=113$ ). In Figure 3.4, the results of both calculations are presented in one single figure in order to be able to compare the differences between relaxation- and adventure-seekers directly. The results for relaxation-seekers are presented in normal style while the results for adventure-seekers are presented in bold.

	AVE	CR	IC
Authentic info	0.778	0.875	0.725
Convenient online tools	0.626	0.870	0.802
Fun & social contact	0.594	0.809	0.652
Info in all formats	0.656	0.851	0.748
Quantity of info	0.716	0.883	0.800
Reduce risk	0.806	0.893	0.771
Social contact & additional info	0.619	0.864	0.788
Supplementary info	0.578	0.801	0.669
Time & tools	0.605	0.821	0.686

Table 3.4: Values for internal consistency, average variance extracted, and composite reliability for the PLS model



Note:

- T-values are presented in parentheses.
- Values presented in normal style belong to the sample of adventure-seekers (Bootstrapping setting: cases=113, samples=200).
- Values presented in bold belong to the sample of relaxation-seekers (Bootstrapping setting: cases=45, samples=200).
- A summary of the comparison is shown in Table 3.5.

Figure 3.4: Comparison between relaxation- and adventure-seekers: Influences of motivational factors on the importance of website features.

Regarding the coefficient of determination ( $R^2$ ), the motivational factors of the relaxation-seekers' sample explain a higher percentage of variance than those of adventure seekers. The only exception is 'quantity of info'. However, the value for  $R^2$  for this latent variable is low for both groups.

	Relaxation-seekers		Adventure-seekers	
	Significance	Path value	Significance	Path value
Authentic info → Convenient online tools	no	0.292	no	0.064
Reduce risk → Quantity of info	<b>yes</b>	0.322	no	0.135
Fun & social contact → Convenient online tools	<b>yes</b>	0.340	no	0.140
Supplementary info → Social contact & add. info	no	0.097	<b>yes</b>	2.141
Time & tools → Convenient online tools	no	0.123	<b>yes</b>	0.373
Fun & social contact → Quantity of info	no	-0.123	<b>yes</b>	0.407
Authentic info → Info in all formats*	<b>yes</b>	0.553	<b>yes</b>	0.413
Fun & social contact → Social contact & add. info**	<b>yes</b>	0.732	<b>yes</b>	0.549

\* The confidence interval for relaxation-seekers is 0.328 to 0.778 that for adventure-seekers is 0.225 to 0.601.

\*\* The confidence interval for relaxation-seekers is 0.569 to 0.895 that for adventure-seekers is 0.387 to 0.711.

**Table 3.5:** Summary: Comparison of direct positive influences between adventure- and relaxation-seekers

	Relaxation-seekers			Adventure-seekers		
	AVE	CR	IC	AVE	CR	IC
Authentic info	0.723	0.839	0.624	0.801	0.890	0.760
Convenient online tools	0.566	0.839	0.750	0.647	0.879	0.818
Fun & social contact	0.591	0.808	0.652	0.582	0.799	0.629
Info in all formats	0.631	0.835	0.705	0.637	0.838	0.762
Quantity of info	0.673	0.860	0.760	0.728	0.889	0.813
Reduce risk	0.825	0.904	0.802	0.804	0.891	0.756
Social contact & additional info	0.623	0.866	0.792	0.606	0.857	0.777
Supplementary info	0.471	0.704	0.746	0.536	0.770	0.620
Time & tools	0.592	0.813	0.652	0.610	0.823	0.696

**Table 3.6:** Comparison of IC, AVE, and CR between relaxation- and adventure-seekers

A comparison based on the degree of sensation seeking (relaxation- vs. adventure-seekers) shows that there are differences between these two groups concerning the significances of the paths (Figure 3.4). The motivational factor of ‘reduce risk’ directly influences the importance of website features (i.e. ‘quantity of info’) in the group of relaxation-seekers. The same is true for the positive influence of ‘fun & social contact’ on ‘convenient online tools’. Moreover, this motivational factor has a highly significant influence on ‘social contact & additional info’ which is true for both adventure and relaxation seekers. In addition to that, ‘fun & social contact’ positively affects ‘quantity of info’ in the group of adventure seekers. This is not true for relaxation seekers. For this group, even a negative path coefficient was found.

Table 3.5 summarizes path values of the two groups and shows if the paths have a significant impact on the different kinds of importance of website feature factors or not. The confidence intervals for the aspects which are significant for both groups (see two last lines in Table 3.5) show that there are no significant differences regarding these two aspects.

For both groups the values for IC, AVE and CR are presented in Table 3.6. The figures show that the model fits the data. However, more values of the relaxation-seekers reach the recommended thresholds, especially concerning IC.

### 3.6 Discussion and conclusion

The aim of the study was to investigate the influence of motivational factors on the importance of certain website features (Research question 1). Results indicated that certain motivational factors to read a blog positively influence the importance of particular groups of website features. Risk reduction of a decision ('reduce risk') influences the importance of quantity of information (number of reviews, number of users, rating of reviews) offered on a website. The motivational factor time saving and use of trip preparation tools ('time & tools') significantly influences the importance of convenient online tools offered on a website. People who search to satisfy their need for 'supplementary info' attach high importance to websites features that allow for connecting with locals and travel buddies. Moreover, they appreciate website features that allow for creating their own map or to subscribe to a newsletter ('social contact & additional info'). Subjects who search authentic information in travel blog entries require information in different formats ('info in all formats'). Three of four importance of website feature factors are influenced by the motivational factor 'fun & social contact'. People searching for information in order to satisfy their need for having fun, and who like to contact other users require features which cover the factors 'quantity of info', 'social contact & additional info', and 'convenient online tools'.

The second research question highlights differences in the influence of certain motivational factors based on the fact that the degree of sensation seeking of travelers differs. Results show that adventure-seekers (high degree of sensation seeking) demand convenient online tools due to their need to save time and to use trip preparation tools. However, there are no significant results for the other group. Instead relaxation-seekers (low degree of sensation seeking) demand convenient online tools to meet their need for 'fun & social contact'. Based on this motivational factor ('fun & social contact'), adventure-seekers require 'quantity of info' website features. The motivational factors 'authentic info' and 'fun & social contact' influences the importance of two factors of website features ('info in all formats', 'social contact & additional info'). This is true for both groups of travelers. A comparison of the confidence intervals, however, shows that there is no significant difference concerning 'authentic info' → 'info in all formats' and 'fun & social contact' → 'social contact & additional info' between relaxation- and adventure-seekers.

### Managerial implications

The results of this study also hold managerial implications. As highlighted in the literature review of website design, there is a need to segment users and adapt the design according to their needs/goals. The results of this study indicate that different needs to read blog entries can be satisfied by offering diverse website features. Therefore, providers need to profile their users not only based on topics but also based on other criteria, such as sensation seeking. Interaction with a website ignoring users' goals may become a very frustrating experience. The designer's approach could be to provide extensive functionality to a website based on the common characteristics of the users' goals and their information requirements. Moreover, other factors have to be considered based on the users' preferences, e.g., the way the information is presented and organized, how one accesses the information, and the navigation structure. Thus, website providers need to take into account users' goals to decide which features to offer while avoiding overload and increasing satisfaction with a website.



### **Limitations and further research**

As for most of the existing studies, this project also suffers from some limitations. A main concern is the small sample size, especially of relaxation-seekers. Moreover, the sample mainly consists of students. Therefore, this study only gives a first hint but one cannot generalize the results for all travel blog entry readers. As the perception of a website influences decision making (Bailay, 2005), and as the quality of a blog entry contribution might be an influencing factor as well (Hennig-Thurau et al., 2002), other studies need to be conducted which take into account these influences. Future research should not only investigate additional motivational factors for reading blog entries but also the influence of motivational factors for writing blog entries on the importance of website features.

This study tried to contribute to the discussion of requirements of different kinds of users based on motivational differences (i.e. sensation seeking) in the field of tourism. However, a netnographical approach (Kozinets, 1998) might be very useful to show if actual behavior matches the users' satisfaction expressed in the questionnaire used in the present study.

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### e-Value: Differences between goal-directed and experiential information search

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Travelers use the Internet as a source of information, which has been subject of extensive research in the past. While the information search process has been investigated, the influence of the actual search goal on the search behavior has been neglected. Travelers' interaction with a website may depend on whether they search for precise factual information or rather stimulus driven and unplanned. The paper shows how searchers who are browsing a website just for fun or search factual information differ in their perception. Theories on online service quality and technology acceptance are critically reflected and extended to gain insights into drivers of value. Multiple group analysis including responses from 445 travelers is applied. Results indicate that the main drivers for value and satisfaction for a goal-directed search are content quality followed by usefulness. These effects are attenuated for the experiential search. Further, ease of use is only significant for the first group while enjoyment only exhibits effects for experiential searchers.

*Keywords:* Goal directed vs. experiential information search, e-tourism, e-value, multiple group analysis.

#### 4.1 Introduction

The growing importance of the Internet as an information source is without doubt (Fodness and Murray, 1999; Gursoy and McCleary, 2004; Luo et al., 2004) and also online travel sales are steadily increasing. From 2007 to 2008 there was an increase in the sales of the European travel market of 17% (Marcussen, 2009). However, the main driver of Internet usage is the provision of information in all phases of search by reducing search cost, increasing shopping convenience, and offering a huge amount of product options (Alba et al., 1997; Bakos, 1998). There is vast research on information search in the pre-travel planning (Crompton, 1979; Mansfeld, 1992) and information search behavior

(Gursoy and McCleary, 2004; Jang, 2005; Snepenger et al., 1990). Bieger and Laesser (2004) investigate the use of different information sources for decisions at different levels of the travel decision process. There is some evidence that depending on what people are looking for they choose different information sources (Vogt and Fesenmaier, 1998). Cotte et al. (2006) investigate the relationship between time, planning style, and hedonic and utilitarian benefits sought from the website usage and highlight the differences between these factors. Depending on the users' aims for either precise factual information or a hedonic entertainment focused information search users choose the sources accordingly. Therefore, the system needs to provide different benefits depending on whether the search is goal directed or experiential (Dickinger, 2010; Wendel and Dellaert, 2005). Thus, the desired outcome of an information search determines which elements of a website are perceived as satisfying and valuable by travelers (Bloch et al., 1986; Hoffman and Novak, 1996; Janiszewski, 1998; Kim et al., 2004). These studies confirm that websites need to match the target users' expectations for satisfaction with the website (Norman, 2002) and ultimately for website success (DeLone and McLean, 1992, 2003).

However, differences of the antecedents of e-value and e-satisfaction depending on the search setting are, not yet well explored. In contrast to other studies, this research compares two different search tasks performed on the same webpage. Thus, the article examines the usage of a website in two different information search scenarios. This allows drawing conclusions on precisely the goal directed versus experiential search. Other authors focus on one system and investigate the fun or the utilitarian benefits involved.

We suggest that depending on a goal directed or experiential search task the drivers of value, satisfaction with a website as well as loyalty intentions will differ. The study provides numerous managerial and theoretical implications: i) the effect on e-satisfaction depending on the search task (directed vs. experiential) is investigated; ii) differences regarding the antecedents of e-value depending on the search setting are identified iii) insights into website conceptualization or design catering to travelers needs are provided.

## 4.2 Theoretical background

For this chapter two streams of research are relevant. First, the concepts of value, satisfaction, and loyalty are important to understand the causes of repeat usage. Second, insights into goal directed and experiential information search theory are important for this article.

### 4.2.1 Value and customer satisfaction

The concepts of quality, value, and satisfaction have been discussed in literature over the past three decades. Of specific interest to this research is the definition and the relationship between the value and satisfaction concept and therefore both will be discussed in more detail. Zeithaml's work on the concept of value identifies a core definition "[...] *perceived value is the consumers' overall assessment of the utility of a product based on perceptions of what is received and what is given*" (Zeithaml, 1988, p. 14). Accordingly, marketers have to understand value to create and manage ongoing relationships with their customers (Mathwick et al., 2001). Furthermore, they have to keep in mind that the experience of for instance searching for information must deliver value to turn a visitor of a website into a repeat customer (Mathwick et al., 2001; Spiegelmann, 2000). This is particularly important since value leads

to satisfied and loyal customers and consequently to a successful website. Various authors stress the importance of value as mediator of the effect of quality of a service (e.g. benefits such as usefulness and content quality) on behavioral intention (Cronin et al., 2000). Value in this context is related to the consumers' trade-off between what they have to give up for the service usage and their perceived value from consumption (Cronin et al., 2000). Accordingly a specific concept such as value seems to be more of a driver of behavioral intentions than a broad attitudinal construct (Kleijnen et al., 2007). Service management literature argues that satisfaction is an outcome of perceived value (Hallowell, 1996), thus, we will now shed some light onto this concept.

Satisfaction is defined as an affective state representing an emotional reaction to the entire search experience (Oliver, 1980; Spreng et al., 1996; Woodruff et al., 1983). Outcome-oriented satisfaction emphasizes a buyer's cognitive state resulting from the consumption experience (Yuksel and Yuksel, 2001). In measuring web-customer satisfaction, a critical task is to identify key constructs for e-customer satisfaction (McKinney et al., 2002; Szymanski and Hise, 2000). Gallagher (1974) came up with a questionnaire focusing on user perceptions of information provided by an information system already in the seventies. Jenkins and Ricketts (1979) developed an 18-item measure of user-satisfaction consisting of five a priori defined factors: input procedures, systems processing, report content, report form, and report value; however, with the limitation of focusing on the product only. Larcker and Lessig (1980) were the first to focus on the product but also included the quality of the service provided by the information system. The scale included items for perceived usefulness, perceived importance, and perceived usability. Bailey and Pearson (1983) derived a list of factors influencing user satisfaction from studies done in the field of computer-user interaction.

Positive experiences with a website lead to satisfaction, enjoyment, positive attitude towards a website, and intention to use it in the future. However according to Hoffman and Novak (1996) this can be enhanced by also acknowledging underlying motivators such as the search setting.

### 4.2.2 Goal-directed and experiential search

Goal-oriented or directed search behavior is driven by utilitarian benefits, which involve external motives to use the Internet as a source of problem solving. This means, users are looking for specific information to fulfill their goals. Hence, they are searching for information on the Internet. Whereas experiential or non-directed search behavior is driven by hedonic benefits and involves internal motives. Putting it differently, people use the Internet for entertainment, fun and emotional satisfaction. Thus, people are browsing the Internet (Hoffman and Novak, 1996; Kim et al., 2004; Pedersen and Nysveen, 2003).

This reasoning is based on the theoretical distinction between motivational characteristics like intrinsic and extrinsic motivation. Csikszentmihalyi (1977, 1990) introduces the notion of flow and describes it as "*the process of optimal experience*" achieved when a sufficiently motivated user perceives a balance between her/his skills and challenges of interaction. According to the orientation, the involvement, the kind of motivation of a user, as well as the kind of search, and received benefits two types of flows can be differentiated: Goal-directed flow and experiential flow (Hoffman and Novak, 1996).



Depending on the search motive and the object of involvement (goal, product, process) one or the other type of flow can be achieved. Goal-directed flow is important for task-specific use, such as pre-purchase information seeking. Experiential flow is relevant for providing entertainment and recreation, as well as for generally increasing users' product knowledge (Hoffman and Novak, 1996). According to Bloch et al. (1986) experiential flow activities are guided by the process itself and not by the goal or outcome. Thus, information search can be either goal-directed or experiential. The first comprises search for specific information (e.g. product attributes) while the second is stimulus driven and not planned (Janiszewski, 1998). Thus, depending on the objectives or the search task the perception of information provided will differ. Generally, the design for each type of flow will differ, since users have different search requirements and consequently demand for diverse websites (De Marsico and Levialdi, 2004).

### 4.3 Conceptual framework and research model

Above discussed streams of research guide theory development for this article. In the following we propose our research model and present the hypotheses; starting with the drivers of e-value.

*Usefulness and ease of use.* According to Davis (1989) to evaluate users' acceptance of new technology researchers have to include usefulness and ease of use, as well as additional variables relevant for the technology, the target group, and the context investigated. Consumers searching online look for an efficient way to get information. Studies on online shopping argue that e-consumers are goal focused and utilitarian. Therefore the concept of usefulness is included as a driver of value (Wolfinbarger and Gilly, 2001). Usefulness is the degree to which people believe that a system will help them to perform better (Davis, 1989). As such it is a fundamental determinant of system use. However, people may perceive a system useful but simultaneously it may be hard to use. Customers want to complete their tasks efficiently and in a convenient manner (Childers et al., 2001). Hence, perceived ease of use as well as usefulness are important antecedents for the usage of a system and are therefore included in the research model. Both, perceived usefulness and perceived ease of use influence users' perceived value of a website.

*H1: Usefulness has a direct positive effect on value.*

*H2: Ease of use has a direct positive effect on value.*

*Enjoyment.* The experience of consuming or searching can be rich in value (Mathwick et al., 2001). Often the concept of intrinsic-value is used to describe perceived fun and enjoyment of a task. According to Babin et al. (1994) fun and playfulness are the drivers of intrinsic value perception. In such a case the value derives from "*appreciation of an experience for its own sake, apart from any other consequence that may result*" (Holbrook, 1994, p. 40). This enjoyment focused concept in some cases is stronger than the value from the actual task completion. People who participate in a task due to pleasure and enjoyment and not because there is some extrinsic motivation may get in a playfulness state (based on flow theory by Csikszentmihalyi (1977)) which in turn may lead to increased perceived value and satisfaction (Moon and Kim, 2001). Related effects were included in surveys on online shopping and the intention to return to a website (Koufaris and Hampton-Sosa, 2002). Additionally, it was found that hedonic use also drives adoption (Venkatesh and Brown, 2001) and the intention to

use a website (Van der Heijden, 2003). Thus, we propose:

*H3: Enjoyment has a direct positive effect on value.*

*Content quality.* High quality content is information tailored to users' needs and ready for consumption. Thus, information needs to be relevant, easy to understand and read, and it needs to be offered in a suitable format (Barnes and Vidgen, 2000). The link between quality, value, and satisfaction is in accordance with previous literature published in the field of consumer behavior (Cronin et al., 2000). Nevertheless, relatively few studies focus particularly on the content-value-satisfaction chain. Only recently, the impact of content quality on perceived value was investigated in the area of information system success, more precisely in the context of accepting m-learning by Yi et al. (2010). Further, in the context of retail websites a study by Kim and Niehm (2009) shows that content quality affects perceived value. As already mentioned earlier value is the assessment of perceptions of what users received from a service or product (Zeithaml, 1988). Thus, since websites are used as a source of information a high level of content quality is imperative for websites to be seen as worthwhile. Hence, we propose the following:

*H4: Content quality has a direct positive effect on value.*

*The value, satisfaction and loyalty chain:* Literature confirms that positive evaluations lead to improved value and satisfaction attributions. These positive value attributions directly influence satisfaction (Cronin et al., 2000). This relationship is based on Bagozzi's (1992) framework of appraisal influencing emotional response and this is in turn a coping framework. In other words, the evaluation of a service such as a website, leads to value and an emotional reaction (satisfaction with the site) and that has an impact on future behavior. Accordingly, in order to increase perceived value and consequently to satisfy customers the usage of a service has to arouse positive feelings (Cronin et al., 2000; Rust and Oliver, 1994). From a manager's perspective, satisfaction matters to the degree it affects customers behavioral intentions (Parasuraman et al., 2005; Zeithaml et al., 1996). Following the satisfaction literature there is a direct link from customers' satisfaction to outcome measures such as positive word of mouth, repurchase intentions, and customer loyalty (Cronin et al., 2000; Fornell, 1992; Fornell et al., 1996; Oliver et al., 1997). Loyalty is the "[...] deeply held commitment to rebuy or repatronize a preferred product or service consistently in the future, despite situational influences and marketing efforts having the potential to cause switching behavior" (Oliver et al., 1997, p. 392). In an online context the loyalty concept deals with a users' intention to use a website in the future and the tendency to recommend others the usage of a website (Moon and Kim, 2001).

*H5: Value has a direct positive effect on satisfaction.*

*H6: Satisfaction has a direct positive effect on loyalty.*

*Search motive as a moderator: Goal-directed vs. experiential:* Searching and surfing the web can be an end in itself; thus, in an online environment for many users the experiential process outranks the final result (Hoffman and Novak, 1996; Wolfinbarger and Gilly, 2001). As such, for an experiential search task enjoyment might be more important. In an experiential setting browsing the web can be a form of recreation for those motivated by enjoyment (Bloch et al., 1986). For a utilitarian, goal-directed task users of an information system may be more committed to the outcome of the search than the fun

involved in searching (Wolfenbarger and Gilly, 2001). While for a goal-directed search the content as such and the usefulness of the site should be the main drivers. Furthermore, people searching for specific information want an efficient and timely way to get to their ultimate goal and usefulness and ease of use become even more important (Childers et al., 2001). This difference in intrinsic motivation should impact the hypothesized relationships.

*H7: For goal-directed searchers the relationship between:*

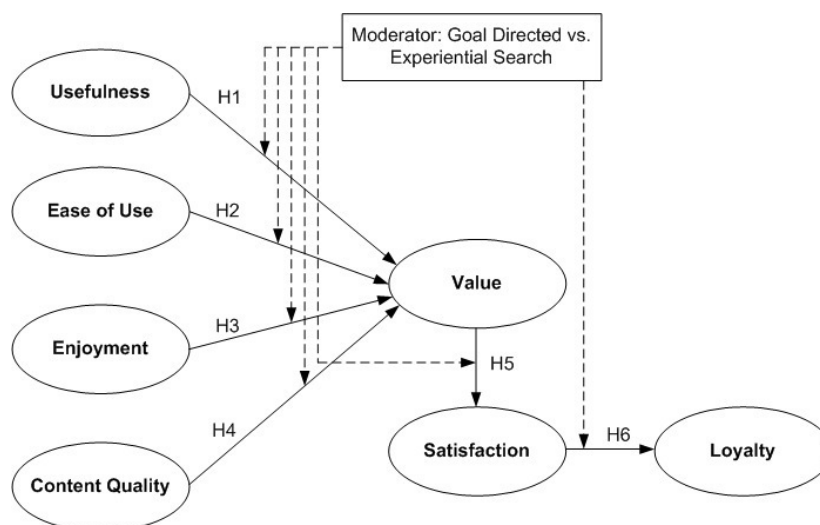
- a: usefulness and value is strengthened.*
- b: ease of use and value is strengthened.*
- c: enjoyment and value is attenuated.*
- d: content quality and value is strengthened.*

Since the website used for the search task conveys multiple features for graphical search support (e.g. tag clouds, semantic map) we suggest that for experiential searchers the overall satisfaction is higher and leads to repeat visits and recommendation of the site. Thus, we hypothesize:

*H7: For goal-directed searchers the relationship between*

- e: value and satisfaction is attenuated.*
- f: satisfaction and loyalty is attenuated.*

Figure 4.1 presents the proposed research model reflecting the hypotheses developed earlier. Apart from testing the overall model the difference between the two groups of users (i.e. goal-directed vs. experiential search) is analyzed. Thus, allowing for a comparison of the path estimates between the experiential and goal-directed search task.



**Figure 4.1:** Research model: Goal-directed vs. experiential search

Experiential search task	<b>Holidays in Austria.</b> Imagine you are planning your next trip to a destination in Austria. Use the Website to discover destinations in Austria where you would like to spend your holiday.
Goal-directed search task	<b>Passion for the Opera.</b> Imagine friends of yours who really love the opera are visiting Austria. Please find four suggestions for your friends for operas in different Austrian places.

**Table 4.1:** Search tasks for a goal-directed and an experiential search

## 4.4 Methodology

### Study design

Data was collected through an online survey. The first page of the questionnaire invited respondents to participate and explained the purpose of the study. The next page provided the goal directed and experiential search task, i.e. users either searched for specific information or they browsed the website stimulus driven and just for fun. The task was randomized to attract an equal number of respondents for the two information search scenarios. Several search scenarios were included in the pre-test to identify realistic ones. The search tasks which discriminated best were chosen for the survey and are presented in Table 4.1. Following the search instructions, a link lead to the website the respondents were asked to base their responses on.

### Operationalization

Following the hypotheses, seven constructs were included in the study. Numerous researchers have discussed antecedents for e-value during the search process and constructs for measuring e-customer satisfaction (Flavián et al., 2006; Liu and Arnett, 2000; McKinney et al., 2002). Thus, questionnaire items were selected based on extensive literature review. The online questionnaire consists of previously developed and tested multiple item Likert-type scales (Table 4.2).

In order to control for the success of the manipulation respondents had to indicate how they perceived the search task by answering the following questions on a 4-point semantic differential scale: How did you search for the information required for this survey? Which adjective suits your search for information best? The response options for the questions were semantic differentials with anchors rationally – instinctively for the first one. The second question had three sets of semantic differentials (thought out – emotional; goal oriented – experiential; time saving – extensive). A pre-test among 35 students scrutinized the measurement instrument and provided clarity and readability of the questionnaire.

## 4.5 Analyses

The research model is tested using covariance based structural equation modeling (CBSEM) employing MPlus, a second generation SEM software tool (Muthén and Muthén, 2007, 1998). A prerequisite of CBSEM is normally distributed data. An inspection of data regarding skewness and kurtosis shows that most of the variables are approximately symmetric (-0.38 to +0.17) only four items are moderately

Construct	Items	Adapted from
<i>Usefulness</i>	The map supports my search. Using the map enhances my effectiveness in the search. Using the system improves my information search. The map helps me to save time.	(Davis, 1989)
<i>Ease of Use</i>	Learning to operate the map was easy. I find it easy to get the map to do what I want it to do. The interaction with the map is clear and understandable.	(Davis, 1989)
<i>Enjoyment</i>	I find the map entertaining. I use the map for pleasure. Browsing the map is an agreeable way of passing the time.	(Van der Heijden, 2003)
<i>Content Quality</i>	The website provides relevant information. The website provides information at an appropriate level of detail. The website provides information content that is easy to read. The website communicates information in an appropriate format. The website provides information content that is easy to understand.	(Barnes and Vidgen, 2000)
<i>Value</i>	The search results are worth the effort. The value received through the search justifies the effort.	(Cronin et al. 2000; Oliver, Rust and Varki, 1997)
<i>Satisfaction</i>	The website is what you need when you search for information. After the search I was satisfied with the results. I will recommend the website.	(Cronin, Brady et al.,2000; Oliver, 1997)
<i>Loyalty</i>	I will use the website on a regular basis in the future. I will frequently use the website in the future. I will strongly recommend others to use the website.	(Moon and Kim, 2001)

**Table 4.2:** Measurement instruments and references used to examine goal-directed and experiential search

skewed (-0.50, -0.90, -0.82, and -0.56). Concerning kurtosis all the variables are platykurtic. This data distribution is confirmed by a screening of the histograms as well as a highly significant Kolmogorov-Smirnov-test. Multivariate normality is a condition often required by CBSEM tools but hardly met in behavioral research. Mplus provides estimators not requiring normal distribution and metric data. Furthermore, it offers a multiple group analysis function allowing to test for the hypothesized differences between the directed and the experiential search task. For the study at hand the robust estimator MLM is used (Satorra and Bentler, 1994). First, the measurement model is calculated allowing for a confirmatory assessment of both, discriminant validity as well as of convergent validity (Campbell and Fiske, 1959). Following the assessment of the measurement model the structural model is evaluated. This is a confirmatory assessment of nomological soundness (Cronbach and Meehl, 1955). In order to test the overall fit of the model, a combination of stand-alone fit indices and incremental fit indices is used. Muthén and Muthén (2007) recommend two incremental fit indices namely the Tucker-Lewis index (TLI) and the comparative fit index (CFI). Concerning stand-alone fit indices the Satorra-Bentler scaled chi-square, and the root mean squared error of approximation (RMSEA) a non-centrality-based measure are considered (for further information see Hu and Bentler (1995)). Concerning multiple-group analysis the notion of Baron and Kenny (1986) is followed. Thus, three models are estimated: First, the overall model is calculated without taking into account the groups and then the estimation is done again for the groups (goal-directed and experiential search) applying the multiple-group analysis procedure of MPlus. Results reported are based on standardized solutions.

## 4.6 Results

### Sample profile

After data cleaning the final sample consists of 445 fully completed questionnaires. Gender is nearly equally distributed with 41.6% female and 58.4% male respondents. The average age of the sample is 28.3 years. Concerning the profession 43.8% are students, 26.3% are white-collar workers, 12.4% are self-employed, and the rest comprises housewives, unemployed, blue collar workers and retired persons. The respondents can be considered experienced regarding Internet usage with 84.3% constantly or several times a day online. Only 7.2% use it several times per week or less frequently. Respondents indicate searching for information for around 8 hours in an average week. The results do not reveal any difference regarding Internet experience between respondents of the goal-oriented and the experiential search task. Furthermore, the manipulation check indicates that the respondents truly perceived the two tasks to be different in that one is experiential and the other one goal-directed. Thus, the manipulation can be considered successful ( $p < 0.03$ ). The allocation between the two groups was about equal with 224 assigned to the goal-directed search task and 221 to the experiential setting.

### Core model

The assessment of the measurement model shows that all items load in excess of .7 on the underlying latent concepts. Factor loadings range from .72 to .96. Hence, individual-item reliability is given in that all squared correlations between a construct and its indicators exceed the threshold of .5. In accordance with the Fornell and Larcker (1981) approach all levels of the average variance extracted (AVE) satisfy the level of .5 by ranging between .62 and .87 (see diagonal in Table 4.3). As can be seen in Table 4.3 convergent validity (CR) is well above the recommended threshold of .7. Comparing AVE

	CR	1	2	3	4	5	6	7
1 Usefulness	0.935	<b>0.732</b>						
2 Ease of Use	0.849	0.533	<b>0.652</b>					
3 Enjoyment	0.839	0.444	0.354	<b>0.722</b>				
4 Content Quality	0.890	0.457	0.292	0.307	<b>0.618</b>			
5 Value	0.930	0.510	0.347	0.299	0.596	<b>0.869</b>		
6 Satisfaction	0.829	0.654	0.432	0.392	0.757	0.740	<b>0.708</b>	
7 Loyalty	0.905	0.462	0.282	0.476	0.465	0.458	0.648	<b>0.761</b>

**Table 4.3:** Discriminant validity and convergent validity in a goal-directed and experiential search setting

and the correlation of the latent concepts we assess discriminant validity. This criterion is met for all but one concept. The AVE of content quality does not exceed the correlation between satisfaction and content quality. As a first indication we would assume that discriminant validity is not satisfied for these two concepts. However, inspecting the measurement items and assessing the similarity of these concepts from a substantive point of view we can argue that they are sufficiently different from each other. Overall, for all the seven latent constructs we can summarize that the concepts discriminate rather well from each other. Moreover, the constructs measurement is unidimensional which is demanded by some researchers, i.e. a model with simple structure and no correlated measurement errors (Anderson and Gerbing, 1988; Gerbing and Anderson, 1988; Hattie, 1985).

The Satorra–Bentler scaled chi-square is significant ( $\chi^2 = 594.3; p < .001$ ); thus, the modification indices are examined. However, no theoretical reasonable paths could be added. A further investigation of stand-alone and incremental fit indicators shows that there is evidence that data actually fit the model rather well. The TLI should be above the level of .9 (Hu and Bentler, 1995) that is achieved by .93. Now the CFI is consulted and is above the required level with .94. The RMSEA is at a satisfying level of .06.

We now report the results of the overall model. The estimation of the SEM indicates that content quality has the strongest effect on value with a beta-coefficient of  $\beta = .556$  ( $p < .001$ ), followed by usefulness with an effect of  $\beta = .306$  ( $p < .001$ ). Ease of use has a weak but still significant impact at a significance level of .10 ( $\beta = .084; p < .060$ ). The hypothesized effect of enjoyment on value does not show a significant result. The effects of value on satisfaction as well as the effect of satisfaction on loyalty show very strong and highly significant results with beta-coefficients of  $\beta = .927$  ( $p < .001$ ) and  $\beta = .799$  ( $p < .001$ ) respectively.

### Moderator search task

To test the moderating effect of the search task, i.e. goal-directed vs. experiential, multiple group path analysis is carried out. As mentioned in the analysis section the recommendations of Baron and Kenny (1986) are followed. In the study the group membership is predefined through the experimental treatment. Thus, this serves as the grouping variable. A careful estimation of three models ensures that the change in  $\beta$ -coefficients is due to a change in the hypothesized relationships and not due to measurement error (Steenkamp and Baumgartner, 1998). The following Table 4.4 presents the estimates; figures in brackets are not significant.

Path estimates	Overall model	Hypothesized effect for goal-directed task	Goal-directed task	Experiential task	p-value
Usefulness → Value	.306 <sup>a</sup>	Strengthened	.332 <sup>a</sup>	.297 <sup>a</sup>	<.001
Ease of use → Value	.084 <sup>c</sup>	Strengthened	.105 <sup>c</sup>	(.048)	<.001
Enjoyment → Value	(.045)	Attenuated	(-.013)	.109 <sup>b</sup>	<.001
Content quality → Value	.556 <sup>a</sup>	Strengthened	.588 <sup>a</sup>	.565 <sup>a</sup>	<.001
Value → Satisfaction	.927 <sup>a</sup>	Attenuated	.948 <sup>a</sup>	.956 <sup>a</sup>	<.001
Satisfaction → Loyalty	.799 <sup>a</sup>	Attenuated	.758 <sup>a</sup>	.841 <sup>a</sup>	<.001

<sup>a</sup> Significant at a 0.01 level.

<sup>b</sup> Significant at a 0.05 level.

<sup>c</sup> Significant at a 0.10 level.

**Table 4.4:** Standardized path estimates of overall model and moderators

After the multiple group analysis is carried out a t-test reveals significant group differences. Results indicate that path estimates show significant differences for the two groups exhibited by the p-values in Table 4.4. This confirms that there is a major difference between the experiential and goal-directed search scenario.

The results indicate that for the goal-directed task we find positive effects of content quality ( $H7d : \beta = .588, p < .001$ ) followed by usefulness ( $H7a : \beta = .322, p < .001$ ). The same is true for the experiential setting but with weakened effects ( $H7d : \beta = .565, p < .001, H7a : \beta = .297, p < .001$ ). Further, in contrast to the findings for the experiential search ease of use is significant in the goal-directed setting ( $H8b : \beta = .105, p < .096$ ) at a .10 level. Enjoyment, however, does not exhibit a significant effect in the goal-directed setting but is significant for experiential searchers ( $H8c : \beta = .109, p < .046$ ). As expected value has a positive effect on satisfaction for both groups but is attenuated for the goal-directed search ( $H8e : \beta = .948, p < .001; \beta = .956, p < .001$ ). Finally, as hypothesized there is an attenuated effect for goal-directed searchers compared to experiential searchers regarding the effect of satisfaction on loyalty ( $H8f : \beta = .758, p < .001, \beta = .841, p < .001$ ). This confirms four of the hypothesized effects; one showed a moderator effect that was contrary to what was proposed and one was not significant.

## 4.7 Discussion and conclusion

For the overall model the hypothesized effects were confirmed to a great extent. All but one concept exhibited the effects hypothesized based on a thorough literature review. Only the effect of enjoyment was not significant. Thus, we can conclude that in the overall setting content quality is the main driver of value of an online source in an information search context while enjoyment is not an end in itself and motivation to search online.

The multiple group analysis exhibited a different picture. The first insignificant effect of enjoyment became significant in the experiential setting while ease of use was not significant anymore. This is in line with the argument that depending on the search task intrinsic motivators such as enjoyment become effective. The empirical evidence shows that the perceived value of browsing is connected to



enjoyment and fun. This confirms that the experiential process outranks the final result (Hoffman and Novak, 1996; Wolfinbarger and Gilly, 2001). If a person is motivated by fun the process of search can be considered enjoyment. This is also confirmed by the non significant effect of ease of use. This driver becomes obsolete when fun is the central motivation.

Contrary to that, in the goal-directed setting enjoyment does not exhibit a significant effect. This finding is strengthened by the significant effect of ease of use and the strong effect of usefulness. These three paths show that in a goal-directed setting users are committed to the outcome of the search task (Wolfinbarger and Gilly, 2001). The fun involved in the task is not important but getting to the goal in an efficient way (ease of use) and finding the right results (usefulness) with an adequate level of quality are the main drivers. This is in line with Childers et al. (2001) arguing that when specific information is searched usefulness and ease of use become even more important.

### **Implications for research**

The aim of this research was to investigate the usage of a website based on two different search scenarios. The results show that there are significant differences between users who search stimulus driven (experiential search task) and those who search for specific information (goal-directed search task). As hypothesized the impact of the main drivers of e-value for the experiential search task (content quality and usefulness) is strengthened for the goal-directed search task. The contrary is true for the effect of satisfaction on loyalty.

In contrast to other studies this research compares two different search tasks performed on the same webpage. This allows drawing conclusions on precisely the goal directed versus experiential search. Other authors focus on one system and investigate the fun or the utilitarian benefits involved.

### **Managerial implications**

Regarding managerial implications this means that website designers have to take usefulness and content quality into account no matter if the user is focused on experiential or goal-directed search. Hence, usefulness and content quality might be seen as basic requirements. However, website designers have to find a way to entertain experiential searchers. The results of the present study show that experiential searchers are prepared to take a certain effort to learn how to use an entertaining website. Ease of use did not show a significant impact for experiential searchers, however, did for goal-directed information searchers. For this group ease of use significantly impacts value of the website, while design elements do not. Hence, in order to develop a worthwhile website it also needs to be based on the intended information search behavior of the target group.

### **Limitations and directions of future research**

Although the study offers new insights into e-value, there are still various research avenues to pursue. A first limitation lies within the data available to us. While many website evaluation studies use survey data including statements on behavioral intention, follow up studies should consider actual behavioral data. Hence, limitations of intentional measures can be overcome. The empirical evidence shows that future research has to focus on different drivers of value and satisfaction depending on search behaviors in order to increase loyalty. Future explorations of information sources based on

search scenarios should include other generally known antecedents for value and satisfaction not included in the present study, such as believability, design, aesthetics, informativeness, or attitude. Thereby, further insights into website conceptualization will allow for adapting websites according to the users goals/needs. Hence, website providers will be able to more accurately match users' mental model and site architecture thus increasing the recommendation rate and repeat usage. Only one website was included in the study. Therefore, future studies should compare different search tasks across different websites. This would further our knowledge on the influence of website design and their effect on value and the search task.

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### How communication modes determine website satisfaction

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This chapter focuses on the influence of users' preferred communication modes to get an understanding of drivers of website satisfaction. The research model extends known theories from the technology acceptance literature and tests the influence of communication mode through the evaluation of a website. The model is tested employing structural equation modeling. Multiple group analysis exhibits differences between people who prefer text over visual based communication modes. The results reveal major differences between the two preferred communication modes. The main driver for verbalizers is content while the main driver of satisfaction for visualizers is design. These results indicate that website designers need to take the preferred mode of communication into account to facilitate online information search.

*Keywords:* Communication mode, online search, website design, website satisfaction.

#### 5.1 Introduction

With travelers increasingly searching for information online, the importance of the Internet as an information source is well established (Beldona, 2005; Xiang and Gretzel, 2009). Accordingly, the Internet has been the subject of research concerning acceptance, usage and satisfaction for years. Some streams of research focus on website evaluation, i.e. the satisfaction with a website (Barnes and Vidgen, 2002; Parasuraman et al., 2005), information system success (DeLone and McLean, 1992), persuasiveness of a website (Kim and Niehm, 2009) and acceptance of a website (Davis, 1989; Venkatesh et al., 2003; Wixom and Todd, 2005). All of these projects aim to understand what makes people use information technology.

When it comes to further investigating the user, literature review reveals that users' characteristics also become relevant. Some studies focus on demographic characteristics such as age and gender



(Venkatesh et al., 2003), others on past Internet experience, domain specific innovativeness (Agarwal and Prasad, 1998), intrinsic motivation (Venkatesh, 2000), voluntariness of use (Venkatesh et al., 2003), knowledge about the topic (Marchionini, 1995), or cultural differences (Chau et al., 2002; Marcus and Gould, 2000).

There are streams of research that try to understand how people learn and search for information. Usually searching and browsing is differentiated. Searching is more analytical and planned while browsing is stimulus driven (Hoffman and Novak, 1996; Janiszewski, 1998). Different ways of interacting with websites, e.g. through highly pictorial elements or text based navigation metaphors, lead to different ways of cognitive processing (G. and Krueger, 2000). This navigation behavior connected to cognitive processes is closely linked to learning (G. and Krueger, 2000). Therefore, a well designed website organizes information in a way that users can easily learn more about the relationships of the content (Holtze, 2000).

Research on learning styles is primarily conducted by scientists from the field of cognitive and educational psychology and by researchers from business schools but has not been investigated from an interdisciplinary perspective (Coffield et al., 2004). The domains of e-learning and distance learning have shown more interest in understanding how people acquire knowledge through websites. There is an abundance of literature on cognitive style/learning style which has emerged in the last decade (Cassidy, 2004). The present study focuses on the user to explain satisfaction – we include both traditional website evaluation constructs as well as the users' preferred mode of communication which in turn is one part of what experts call learning style. Since the field of learning styles is vast, we focus on the communication mode which is more appropriate in our context.

We investigate what has been neglected so far from an interdisciplinary point of view, i.e. we take into account users preferred communication mode. Thus, this research contributes to literature in various ways: i) we attempt to fill the void in understanding the relationship between communication modes and antecedents to website satisfaction ii) we provide insights into website design taking into account users' preferred mode of communication and iii) we shed light on the unexplored field of differences between visualizer and verbalizer in the context of tourism.

The remainder of the chapter is organized as follows: in section two we present the theoretical background. We provide a rather comprehensive review of learning theory. Literature concerning information systems and well known concepts used for hypotheses development are briefly presented. Then we explain the research method, data collection, analyses, and the results of the study. The chapter closes with a discussion and implications.

## **5.2 Theoretical background**

There is no common notion or conceptual framework for learning styles. The overview by Coffield et al. (2004) provides insights into the complexity of the field and the number of individual models. Some provide behavioristic theories as well as objectivistic and constructive philosophies. Cognitive theories focus on problem solving, or new cognitive learning models are based on information processing. Learning style theories examine how people perceive information, come to a decision, and interact with their environment (Cassidy, 2004). However, website design literature has hardly

included factors such as learning styles, users' preferences and perceptions on system interaction types (Holtze, 2000; Sabry and Baldwin, 2003), although related issues are highly relevant for designing interfaces successfully. For instance, based on the field Dependence/Independence Model there is evidence that the individual's ability to distinguish relevant from irrelevant content in much of the information differs (Witkin et al., 1977). According to the learning Perceptual Preference Model, styles are influenced by the preferred sensory stimuli. Most people use a mixture of four available styles, i.e. auditory, visual, tactile, and kinesthetic (Wooldridge, 1995). A paper by Holtze (2000) discusses the application of learning styles to web page design; however, it only stresses the relevance of considering those. The research at hand goes a step further by empirically investigating the affect of styles on the perceptions of a website in a tourism context.

In order to account for different learning styles, four dimensions have to be addressed (Felder and Silverman, 1988): sensing (concrete, fact oriented) or intuitive (abstract, theory oriented), visual (pictures, diagrams) or verbal (written, spoken), active (learning by doing) or reflective (learning by thinking things through), and sequential (incremental steps) or global (holistic process). Quite a number of learning style measures have been developed, e.g. the Learning Style Index (Felder and Soloman, 1991), the Learning Style Inventory (Kolb, 1976), the Attributional Style Questionnaire (Peterson et al., 1982), or the Learning Style Questionnaire (Allinson and Hayes, 1988). Another inventory to understand how users process information is provided by Fleming and Baume (2006) through VARK. VARK is the acronym for visual, aural, read/write and kinesthetic which has been used for years to test for preferences regarding e.g. symbolic information (maps, diagrams, charts) and written words (Fleming and Baume, 2006). Customers exhibit strong preferences in how they make choices so it seems worthwhile to investigate the preferences with regards to how they acquire information (Fleming and Mills, 1992).

Web designers commonly differentiate representations of text, voice, audio, picture, and moving pictures. With regards to learning styles, a majority of people learn text based, as opposed to audio. Even though voice is the most natural communication mode, this does not hold true in a computer mediated environment (Schär G. and Krueger, 1999). Voice is more context dependent and more suitable to just extend the information content of pictures (G. and Krueger, 2000). Research found that the usage of text and voice have a negative learning effect, pictures in combination with voice a positive learning effect, and all three at the same time a negative learning effect (Schär G. and Krueger, 1999). On the Internet, visual stimuli are predominant while sounds are more sparsely used. This is also considered in this research through a focus on text based information provision.

Selection of communication modes corresponding to learning styles aims at presenting information in order to match a person's perceptual and cognitive system G. and Krueger (2000). Hence, knowledge about the preferred communication modes would allow marketers to better tailor information to improve their online communication strategies. Media should match the aspects of the information they want to convey. (G. and Krueger, 2000) propose text based information to present basic abstract characteristics and logic conditions while pictures should preferably be used to present information about an object and its functions. Furthermore, using moving pictures can make information even more realistic. It is not yet explored how these principles from selected communication modes would apply in designing a tourism website.

### 5.3 Conceptual framework and research model

The adoption of innovations has been investigated for years resulting in different theories, i.e. the diffusion of innovation (Rogers, 1995), the Technology Acceptance Model (Davis, 1989), the Social Cognitive Theory (Compeau et al., 1999), the Task-Technology Fit model (Goodhue and Thompson, 1995) and most recently Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003). In the field of marketing, quite a lot of researchers focus on the influence of perceived website performance (e.g. usefulness, enjoyment, content quality) on the satisfaction with web pages (DeLone and McLean, 1992; Wolfinbarger and Gilly, 2001; Barnes and Vidgen, 2002; Parasuraman et al., 2005). This is especially important since satisfaction leads to loyal users and consequently to a successful website. All these streams of research are relevant for the hypotheses development of the present study. Since the focus of the study is not the test of established hypotheses, these are all explained in brevity. The focus is on the moderation of these relationships due to the learning types (verbalizer vs. visualizer) as explained at the end of this section.

*Usefulness and Ease of Use.* According to the Technology Acceptance Model by Davis (1989), a system has to be both easy to use as well as useful, i.e. it also has to help users' to perform better. Hence, perceived ease of use as well as usefulness are important. Both concepts influence users' satisfaction with a system (Davis et al., 1989).

*H1: Perceived usefulness has a direct positive effect on satisfaction.*

*H2: Perceived ease of use has a direct positive effect on satisfaction.*

*Enjoyment.* Recently, ICT-adoption research includes emotional aspects too (Venkatesh, 2000), and there is already evidence that hedonic and enjoyment oriented use drives the adoption and the intention to revisit a site (Venkatesh and Brown, 2001). People who perceive a usage scenario as playful (based on the flow theory by Csikszentmihalyi (1975)) are motivated to e.g. browse a site or shop online due to the pleasure they experience (Moon and Kim, 2001). Surfing the Internet becomes an end in itself. Thus, we propose:

*H3: Enjoyment has a direct positive effect on satisfaction.*

*Website Design.* According to Norman (2002), users' satisfaction increases if the site architecture matches the users' mental model, i.e. the better users' requirements are fulfilled the more satisfied people will be (Sullivan, 1997).

*H4: Website design has a direct positive effect on satisfaction.*

*Content Quality.* In order to satisfy user, information needs to be relevant, easy to understand and read, and it should be offered in an appropriate format (Barnes and Vidgen, 2000).

*H5: Content quality has a direct positive effect on satisfaction.*

*Satisfaction and Loyalty.* According to Rust and Oliver (1994), a service needs to be able to arouse positive emotions to satisfy consumers. Satisfaction literature postulates a direct link from satisfaction

to outcome measures, e.g. repurchase intentions and customer loyalty (Cronin et al., 2000; Fornell, 1992; Fornell et al., 1996; Oliver et al., 1997). In an online context, loyalty is defined as the intention of users to revisit a website or to tell others about the site and to recommend it (Oliver et al., 1997, p. 392).

*H6: Satisfaction has a direct positive effect on loyalty.*

*Mode of communication.* People absorb information differently. However, there are several researchers who strongly support the duality of human information processing (HIP), this approach has also been applied in the field of learning (Bloom, 1956; Krathwohl et al., 1964). According to Bloom (1956), there are two categories: Cognitive people have analytic and systematic skills while affective types prefer intuitive and unsystematic processes. Jung (1971) suggests a continuum including two extreme forms called 'sensors' and 'intuitors'. Sensors want to learn by doing, i.e. they do not look at the website as a whole, but they will make a quick decision and start clicking. Sensors perceive it as frustrating if information cannot be gathered intuitively but rather involves reading a lot of instructions. Intuitors are looking for patterns, they prefer websites with information organized by concepts (Holtze, 2000). The dual approach has been conceptualized using many different terms. Other terms used are verbalizer or verbal (comparable to intuitors who are great conceptual thinkers and cognitive) and visualizer or imagery (similar to sensors and affective learners) (Paivio, 1971; Richardson, 1977). Major differences concerning information processing/learning, i.e. precisely their preferred mode of communication between the analytic type and the intuitive type is what all these models have in common. This is also in line with the split-brain research stipulating that left-brain dominant learners tend to have characteristics of sequential learners while right-brain dominant people learn more globally (Ornstein, 1977; Sperry, 1961).

Since verbalizer (i.e. people preferring text based communication modes) and visualizer (i.e. people preferring more visual communication modes) are particularly important in an online context (Drago and Wagner, 2004), these two styles are included in the present study. People favoring visual communication modes (in the following called visualizer) prefer presentations, they can easily remember faces but tend to forget names, and their interest is attracted by movement or action but not by noise. People favoring text based modes (in the following called verbalizer) can remember things best if they take notes, listen to lectures, and they are interested in hands-on tasks (Drago and Wagner, 2004; Fleming and Mills, 1992). Due to the differences between visualizer and verbalizer concerning their preferred communication mode the following hypotheses are proposed:

*H7: Compared to visualizer, for verbalizer, the relationship between:*

- a) usefulness and satisfaction is strengthened.*
- b) ease and satisfaction is strengthened.*
- c) enjoyment and satisfaction is attenuated.*
- d) website design and satisfaction is attenuated.*
- e) content quality and satisfaction is strengthened.*

Figure 5.1 presents the proposed research model reflecting the hypotheses developed earlier. Apart from testing the overall model, the difference between the two groups of preferred communication modes (i.e. verbalizer and visualizer) is analyzed. Thus, the multiple group analysis will provide insights into the differences of path estimates between the two modes.

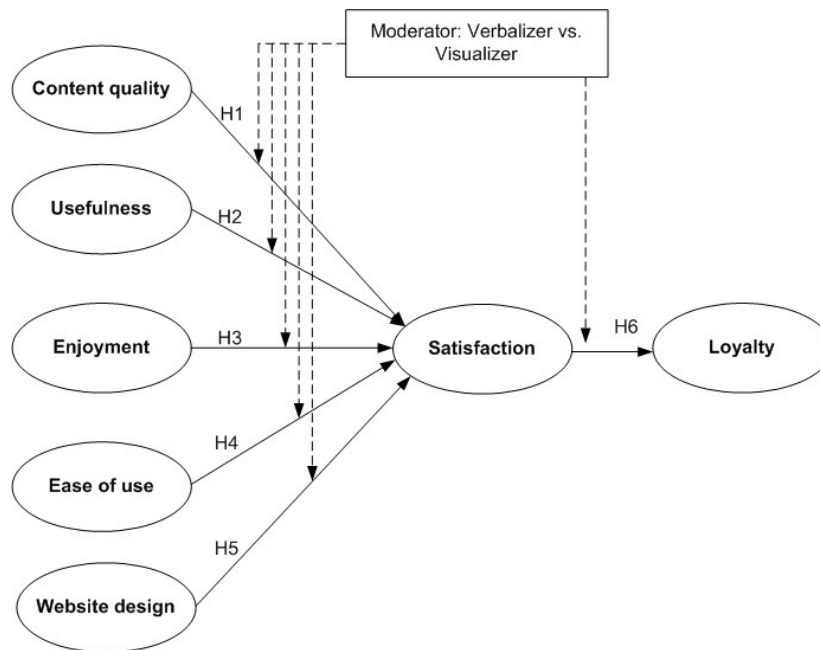


Figure 5.1: Research model: Verbalizer vs. visualizer

## 5.4 Methodology

An online survey was carried out for two weeks among Austrian Internet users. Respondents were recruited via e-mail providing them with the background of the study and a link to the website we used for the evaluation. Respondents were asked to search the website for some specific information to simulate the situation of actual information search. This approach is used in various studies on information search and website evaluation. Respondents were invited to participate in the study and asked to forward the e-mail to friends to fill out the questionnaire also; thus, a snowball sampling approach was used. Participants were faced with a specific search task for travel information. Based on that task they assessed the website. The specific site was developed in the course of a research project and provides traditional keyword search as well as unique graphic search support in the form of tag clouds and ontologies.

Following the hypotheses, seven constructs are included in the study. The questionnaire consists of previously developed and tested multiple item Likert-type scales. Ease of use and usefulness are measured by four items each adapted from Davis (1989) and Davis et al. (1989). Three items from Van der Heijden (2003) are adapted for enjoyment. Five items from Barnes and Vidgen (2000) are the basis for content quality, and the four measures for website design are adapted from Lee et al. (2002). Satisfaction and loyalty are measured by five and three items respectively. These are adapted from Cronin et al. (2000), Oliver et al. (1997) and Moon and Kim (2001). The communication mode is measured using six items. Three are adapted from the VARK questionnaire (Fleming and Mills, 1992) and three are adapted from the Learning Style index by Felder and Soloman (1991). A pre-test among 35 students scrutinized the measurement instrument and provided the clarity and readability of the questionnaire.

	Content Quality	Usefulness	Enjoyment	Ease of Use	Website Design	Satisfaction	Loyalty
AVE	0.632	0.730	0.661	0.592	0.514	0.709	0.734
CR	0.896	0.915	0.854	0.852	0.808	0.924	0.892

**Table 5.1:** *Measurement model – communication modes*

## 5.5 Analysis

To identify the different communication modes, the Typology Representing Network (TRN-32) toolkit, using the neural gas algorithm (Martinetz and Schulten, 1991), was used to perform a cluster analysis (Mazanec, 2001). As expected the clustering procedure favoured two segments, i.e. verbalizer (32%) and visualizer (68%). The test statistics support a two segment solution as the weighted simple structure index (wSSI) arrives at .61 and the uncertainty reduction yields 99%. The individual's segment membership is used as the grouping variable in a second step. As such we follow the Baron and Kenny (1986) approach to test moderator effects through multiple group analysis when the group membership is known.

The Structural Equation Model (SEM) is estimated using Mplus, a second generation SEM software tool (Muthén and Muthén, 2007). Mplus offers estimators which are robust against non-normal distributed data. Moreover, the tool provides a multiple group analysis function which allows the estimation of hypothesized differences between verbalizer and visualizer. After assessing the measurement model the structural model is estimated (Anderson and Gerbing, 1988). Only items loading in excess of .5 are included in the measurement model. Local fit measures concerning reliability are in accordance with the levels recommended by Fornell and Larcker (1981). Table 5.1 shows that the average variance extracted (AVE) and composite reliability (CR) are well above the suggested thresholds of .5 and .7 respectively.

## 5.6 Results

### Sample profile

After data cleaning, the final sample consists of 238 fully completed questionnaires. Gender is nearly equally distributed with 43.7% female and 56.3% male respondents. The average age of the sample is 28.3 years. Concerning profession, 43.5% are white collar workers, 40% are students, 7.3% are self employed, and the rest comprises housewives, unemployed persons, blue collar workers and retired persons. The respondents can be considered experienced regarding Internet usage with 83% using it constantly or several times a day. 9% use the Internet once a day and the rest less frequently. Regarding usage of the Internet, 39% indicate to have used it for more than 10 years, 48% between 5 and 10 years, and the remaining 13% have used the Internet for up to five years.

### Overall model

Investigation of the fit indicators shows that data fit the model well. Muthén and Muthén (2007) recommend the Tucker–Lewis index (TLI) and the comparative fit index (CFI) when the MLR estimator

	Overall model	Verbalizer	Visualizer	p-values
H7a) Usefulness → Satisfaction	0.327	0.365	0.305	< 0.001
H7b) Ease of Use → Satisfaction	(0.029)	(0.125)	(-0.018)	–
H7c) Enjoyment → Satisfaction	(-0.079)	(0.040)	(-0.114)	–
H7d) Website Design → Satisfaction	0.381	(0.147)	0.497	< 0.001
H7e) Content Quality → Satisfaction	0.352	0.391	0.319	< 0.006

**Table 5.2:** Path estimates for the overall model and the multiple group model – verbalizer vs. visualizer

is employed. The TLI should be above the level of .9 (Hu and Bentler, 1995) which is achieved by .920. Now the CFI is consulted and is above the required cut-off value with .929. The Root Mean Square Error of Approximation (RMSEA) is at a satisfying level of .060, and the Standardized Root Mean Square Residual is at .056. The results of the SEM indicate that design has the strongest effect on satisfaction ( $H5; \beta = 0.381$ ), followed by content quality ( $H1; \beta = 0.352$ ) and usefulness ( $H5; \beta = 0.327$ ). The other antecedents of satisfaction (ease of use and enjoyment) do not show significant effects. The effect of satisfaction on loyalty is strong and positive with  $\beta = 0.820$ . Since this path coefficient is rather high, we investigated discriminant validity of loyalty and satisfaction. A comparison of the average variance extracted and the shared variance shows that the concepts discriminate rather well.

### Multiple group path analysis

In order to reveal assumed heterogeneity between different communication modes, i.e. between verbalizer and visualizer, a multiple group path analysis is carried out. Three models were estimated to secure that a change of the coefficients is not due to measurement error but due to a change in the hypothesized effects (Steenkamp and Baumgartner, 1998). The path coefficients for the overall models and the two groups are presented in Table 5.2 (figures in brackets are not significant).

In order to reveal differences between the two groups a t-test is conducted. The p-values indicate that there are significant differences between people who prefer text based communication modes and those who prefer visual ones. The main driver for verbalizers is content quality ( $H7e : \beta = 0.391$ ) followed by usefulness ( $H7a : \beta = 0.365$ ). Interestingly the effect of design is not just attenuated it is actually not significant for the verbalizer group. For visualizer, however, website design is by far the main driver of satisfaction ( $H7d : \beta = 0.497$ ). This is followed by content quality ( $H7e : \beta = 0.319$ ) and usefulness ( $H7a : \beta = 0.305$ ). There are no differences between the two groups concerning the effect of satisfaction on loyalty ( $p < .3118$ ). This is intuitive since the effect of satisfaction on loyalty is not moderated by the preferred communication mode of people but the effect should be present for all groups.

## 5.7 Discussion and conclusion

The research investigates the moderating effect of communication mode on the relationship between antecedents and satisfaction. A survey among 238 Internet users gives insights into this phenomenon. The results reveal that there is a significant difference regarding the importance of antecedents on satisfaction based on the individual's preferred mode of communication. Thus, this information should be taken into account when websites are created.

The satisfaction of people who prefer text based communication modes (i.e. verbalizer) is driven by the content followed by the usefulness of a website. While for people favoring visual modes (i.e. visualizer) satisfaction is mainly driven by the design of a website. The inclusion of the effect of satisfaction on loyalty reveals that there are certain concepts which have the same effect for all individuals. An explanation might be that if people are satisfied they tend to become loyal in general, i.e. if they are satisfied they tend to revisit a website irrespective of their preferred mode of communication.

According to previous literature, website designers need to take their target group into account (De Marsico and Levialdi, 2004; Sullivan, 1997). However, based on the results of this study, a website needs to be designed considering the preferred mode of communication of the target group also. Due to the complexity of a journey, especially in tourism, different online searching types are prevalent. Some travelers may search analytically or holistic as well as goal oriented or exploratory. It might increase satisfaction as well as loyalty if the design of websites aims at matching traveler's perceptual and cognitive systems.

Although this study provides new insights into satisfaction with websites based on preferred mode of communications, there are still various research avenues to pursue. A first limitation lies within the data available to us. Our data contain intention measures rather than behavioral measures. While many website evaluation studies apply such an approach, follow up studies should consider using actual behavioral data. A second limitation is the fact that the study is based on a convenience sample. Also the sub-samples become rather small for the multiple group analysis. Additionally, the results are based on the evaluation of only one website. Therefore, future research should further investigate the influence of the preferred mode of communication across various types of websites.

The study at hand focused on verbalizer and visualizer; however, there might be groups who are a mixture of both or who prefer audio and kinesthetic cues. For those types an investigation of how watching and clicking as well as animations with sound work would be worthwhile. Future research should further differentiate between the search metaphors such as maps, tag clouds, and ontologies to provide further insights into how searchers can be supported in their respective search tasks. As Fleming and Baume (2006) indicate, communication mode preferences are only stable in the medium term and not fixed. Thus, a longitudinal study would merit investigation.



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## CHAPTER 6

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### What do consumers want from their e-fellows? Segmenting travelers based on their preference for hotel review categories

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This chapter investigates the influence of hotel guest reviews on customer hotel preferences in the context of booking hotels online applying a conjoint design. The empirical research shows that the subjects' willingness to pay is significantly higher than their reference price for hotels. In addition to that, the results of this study indicate that reviews on the hotel in general and on the hotel's rooms are perceived the most useful for consumers reading reviews. Applying a cluster analysis, we identify seven different segments. The findings indicate that users of consumer reviews do not belong to only one homogeneous group but perceive the importance of review categories differently. The chapter also provides managerial implications.

*Keywords:* Willingness to pay, electronic word of mouth (eWOM), web 2.0, hotel review.

#### 6.1 Introduction

With the growing importance of Internet communication, a multitude of new possibilities has become available for consumer-to-consumer communication. One popular form of electronic word-of-mouth communication refers to online reviews. Unlike traditional word-of-mouth, consumers using online reviews for their purchase decision benefit from the fact that numerous positive as well as negative opinions are available from other people at the same time (Chatterjee, 1991).

Several studies have been conducted to examine the influence of consumer reviews on book or movie sales (Dellarocas et al., 2004; Duan et al., 2005; Chevalier and Mayzlin, 1991, e.g.). However, studies focusing on travel products and services are still rather scarce although today many platforms offer online travel reviews. For instance, numerous online hotel and travel booking platforms provide

their customers with features to evaluate hotel room offerings in form of formalized ratings and reviews. To the best of our knowledge so far, no studies have investigated consumer reviews in the context of online booking using willingness to pay and reference price as a measure for preference rating. Therefore, the present study attempts to address this issue by examining how certain review categories influence an individual's preference for hotels. Moreover, the study investigates if providers of review platforms need to target different homogeneous groups of users based on their perceived importance of review categories.

## 6.2 Theoretical background

### 6.2.1 Word-of-mouth

Word-of-mouth is defined as "*all informal communications directed at other consumers about the ownership, usage, or characteristics of particular goods and services or their sellers*" (Hennig-Thurau and Walsh, 2003, p. 51). Basically, word-of-mouth in online environments occurs in form of user generated content (UGC) which describes media content that is not initiated and published by commercial parties on the web but by users themselves (OECD, 2007). Unlike traditional commercial web content, UGC comprises "*all sources of online information that are created, initiated, circulated and used by consumers intent on educating each other about products, brands, services, personalities and issue.*" (Blackshaw and Nazzaro, 2006, p. 2).

For many years, studies have investigated the influence of interpersonal communication on consumers' decision-making processes (Kiel and A., 1981; Beatty and Smith, 1987, e.g.). The study by Buttle (1998) showed that word-of-mouth influences an individual's expectation and perception when searching information about a product. In addition to that, interpersonal communication also impacts consumers' attitudes when evaluating product alternatives due to increased product consciousness and perceived trustworthiness of word-of-mouth as a source of information. More specifically, unfavorable or neutral perceptions of a product or service are nine times more effectively transferred into positive attitudes by positive word-of-mouth than they are transferred by traditional advertisement (Buttle, 1998). Likewise, negative word-of-mouth statements dissuade potential customers from purchasing a specific product or service (Sundaram et al., 1998). However, Chatterjee (1991) found that the influence of negative product reviews varies with previous experience. This means that consumers who had satisfying prior experiences with a specific retailer or product are less attentive to negative word-of-mouth than consumers who solely choose one retailer because s/he offers lower prices.

Since more and more consumers use the Internet to collect information about products and services online, consumer reviews have received increased attention in literature concerning their influence on consumer purchase decisions. Dellarocas (2003) found that with the growing importance of the Internet the scale and scope of word-of-mouth communication has dramatically increased. Senecal and Nantel (2004) investigated the influence of online product recommendations on consumers' product choices as well as the moderating influence of variables related to recommendation sources and the purchase decision. The results indicated that online product recommendations had a stronger impact on an individual's product choice for experience products than for search products. Interestingly, online recommendation systems were found to be the most influential source in the choice process.

At the same time, consumers perceived these systems as less experienced and as less trustworthy compared to human experts. However, it has also been found that consumer reviews do not necessarily contain customers' own experiences but are strongly influenced by public opinions. Especially, expert reviews have an enormous impact on the information carried on in consumer reviews (Gao et al., 2004).

Another issue that has come up in literature refers to the relationship between word-of-mouth communication and product sales. Senecal and Nantel (2004) found that persons using consumer reviews and recommendations during their process of information search prior to purchasing a product bought the recommended product twice as often as consumers who did not consult any product reviews. Due to this, several studies use online word-of-mouth communications to forecast future product or service performance and sales. For instance, Duan et al. (2005) found that the amount of word-of-mouth posts available on online review sites significantly impacts movie sales. They, however, also found that better movie ratings are not a valid instrument to forecast higher sales. Thus, they concluded that not the user ratings themselves but rather the underlying word-of-mouth processes influence movie sales. Likewise, Dellarocas et al. (2004) showed that online reviews on 'Yahoo! Movies' during the first week of a movie's release can serve a useful proxy for further word-of-mouth and provide a solid data basis for accurate movie revenue forecasts.

Similarly, Chevalier and Mayzlin (1991) examined the relationship between market shares and customer reviews for books comparing book reviews of the online bookstores *Amazon.com* and *BarnesandNoble.com*. The results suggested that online consumer purchasing behavior is strongly influenced by word-of-mouth in online book reviews. Additionally, they found that the relative market share of a book which is presented on two different websites is related to differences in the number of available reviews as well as to differences in the average star rating on each site.

### 6.2.2 Electronic word-of-mouth in the tourism industry

Especially in the case of experience products word-of-mouth communications are considered important information sources. Tourist services cannot be experienced before use or returned in case of dissatisfaction. This means that every time a tourist product is purchased the consumer faces a certain risk. This risk can be reduced through reading reviews and experience reports written by fellow customers (Ricci and Wietsma, 2006).

Whether word-of-mouth sources are trustworthy was an issue in the survey by Gretzel and Park (2007). The survey was conducted on the online booking platform *www.tripadvisor.com*. Results showed that the highest trustworthiness was assigned to customers who had similarities with the reader concerning travel experience, choice of activities, intention of travel and where the tone of the review was considered nice and friendly. Also, the highest informational value was assigned to reviews from experienced travelers who carried out similar activities during their travel and had similarities concerning age, gender and marital status. Additionally, pictures and the evaluation of guest reviews by readers increased the perceived value of a travel review. Concerning the frequency of reading, more than half of the respondents (7,000 respondents in total) stated to read customer reviews every time they plan a pleasure trip, and 36.7% indicated to read reviews very often or regularly. Most of the participants usually read other customers' comments because they want to reduce the choices



of travel destinations and accommodations and to obtain ideas. More than two thirds think that customer reviews are extremely or very important in their travel decision process (Gretzel et al., 2007).

Ricci and Wietsma (2006) employed a user behavior survey to investigate the possible roles and functions of product reviews in travel decision making. They found that usage and impact of reviews depend on user characteristics. Men seem to have a stronger tendency to trust the opinion expressed in product reviews whereas women tend to rely more on their own product interpretations. Additionally, the results showed that more experienced users of online booking platforms or consumer-opinion platforms show a better understanding of product reviews than inexperienced users. More experienced users also tend to be more open towards critical reviews with negative product evaluation. In general, the importance of product reviews increases throughout the consumer's decision process. In early stages, consumers primarily focus on product features. With increasing knowledge of products and alternatives users become more attentive to product reviews.

The study by Gretzel and Yoo (2008) showed that users access reviews mainly to get information for decisions concerning accommodation. However, reviews are hardly ever used for en route travel planning. As regards the hospitality industry a study by Dickinger and Mazenec (2008) revealed that recommendations of friends and online reviews have the strongest influence on booking hotels online. The impact of online hotel reviews on consumer consideration was investigated by Vermeulen and Seegers (2009). It is shown that positive reviews have a positive influence on the guests' attitude toward a hotel. Awareness of hotels is increased by positive as well as negative reviews.

Based on the foregoing discussion, the study intends to examine the role of consumer reviews on price acceptance and preferences in the context of booking hotels online. Thus, the main research questions addressed in this study are:

*Research question 1: Which categories of consumer reviews are considered the most important for a consumer when evaluating hotels?*

*Research question 2: Do these importance values differ among groups of users?*

*Research question 3: Do willingness to pay and reference price differ?*

### 6.3 Methodology

The first step of our research design was to select an appropriate online hotel booking platform and attributes which are relevant when consumers want to book a hotel online. Our survey was finally carried out in cooperation with the booking platform HolidayCheck ([www.holidaycheck.com](http://www.holidaycheck.com)). HolidayCheck offers package tours, accommodations, and cruises in eight different languages as well as the possibility to write hotel and cruise reviews. In addition to that, users can upload holiday pictures and videos. At present, over 700,000 travel reviews, more than 600,000 user-created pictures and nearly 9,000 videos as well as over 900,000 travel forum entries are available. On HolidayCheck, consumer hotel evaluations can be itemized into different categories on a scale from one to six suns (six suns for 'very good' and one sun for 'unsatisfactory'). In addition to that, reviews and corresponding

sun ratings can be displayed separately by different travel parties (e.g. couples, families, solo travelers and friends). Moreover, the platform offers a general hotel evaluation trend which is computed based on consumers' reviews.

The second step of our research methodology comprised the conjoint design of our study. A simple viable conjoint design was preferred in order to examine the influence of customer reviews and the number of evaluations on customer preferences for hotels. For this purpose, we adapted the review attributes available on HolidayCheck based on literature review. In our study, we used the following six attributes for the hotel review:

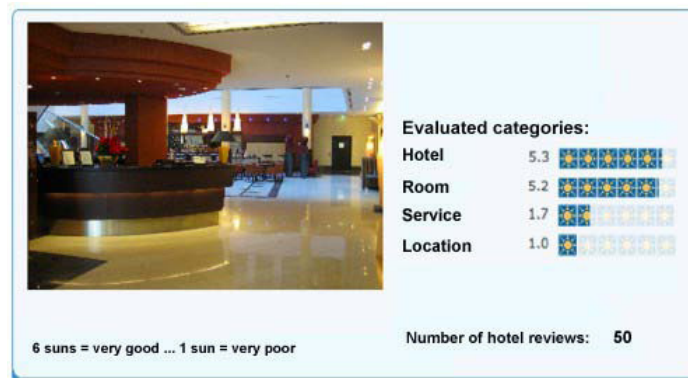
1. Hotel in General
2. Hotel Room
3. Service
4. Location
5. Number of Hotel Reviews
6. Pictures

Each attribute was operationalized using two levels which were determined on the basis of a pilot study. The two levels, for the first four attributes were represented by one to two suns (poor) and five to six suns (good). The number of hotel reviews (attribute 5) ranged from one to three (few) and 48 to 58 (many) evaluations. These numbers are based on realistic values to be found on the HolidayCheck platform. For the last attribute 'picture' we used two different kinds of pictures: the public hotel area (picture of the hotel lobby) or private area (picture of the room). Thus, the last attribute also consisted of two levels.

Once the attributes and their levels have been selected, they must be combined forming different hypothetical hotel profiles (i.e. cards) for the study subjects to assign their preference ratings. For this study we used a full profile approach. In order to specify the number of possible hotel profiles we need to multiply the levels of the attributes. This results in 64 hotel profiles ( $2 \times 2 \times 2 \times 2 \times 2 \times 2 = 64$ ). However, to evaluate such a high number of cards would be much too demanding for survey respondents. Thus, we used the SPSS orthogonal array design function, which generated eight hotel profiles used in this study. This procedure permits statistical testing of several attributes without testing every combination of attribute levels. Figure 6.1 shows an example of a hotel review which the study subjects had to evaluate. As the figure depicts, the levels for this example are the following: hotel in general 'good', room 'good', service 'poor', location 'poor', number of hotel reviews 'many', and picture 'picture of the hotel lobby'. It is important to mention that hotel standard and offered facilities were held constant throughout all hotel reviews.

The respondents were asked to imagine booking a city trip to Germany or Austria including a hotel stay. They had to assign their preference ratings for the eight hotel profiles using two different questions (Table 6.1). The first question measures an individual's willingness to pay whereas the second question refers to the reference price. Willingness to pay refers to the upper threshold a consumer is prepared to pay while the reference price indicates the price which is considered as fair and adequate.

In addition to the preference ratings, questions about the respondents' Internet usage, their previous hotel booking experience and travel behavior as well as demographic data were included in a



**Figure 6.1:** Example of a hotel review package to be evaluated by the test persons

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Imagine you do a reservation in the hotel presented above:

Which price would you pay at maximum for one night?

<30 €   30-50 €   51-70 €   71-90 €   91-110 €   111-130 €   131-150 €   151-170 €   171-190 €   >190 €

Which price do you consider as fair and adequate?

<30 €   30-50 €   51-70 €   71-90 €   91-110 €   111-130 €   131-150 €   151-170 €   171-190 €   >190 €

---

**Table 6.1:** Questions for preference ratings – to evaluate the cards

subsequent questionnaire.

In order to reach the target group of online travel customers, a call for participation in the study was sent out via HolidayCheck to newsletter subscribers in July 2008. As an incentive to complete the online questionnaire, three travel vouchers each worth € 150 were raffled among the participants. During the month of July, 367 questionnaires were fully completed and therefore usable for the purpose of this study.

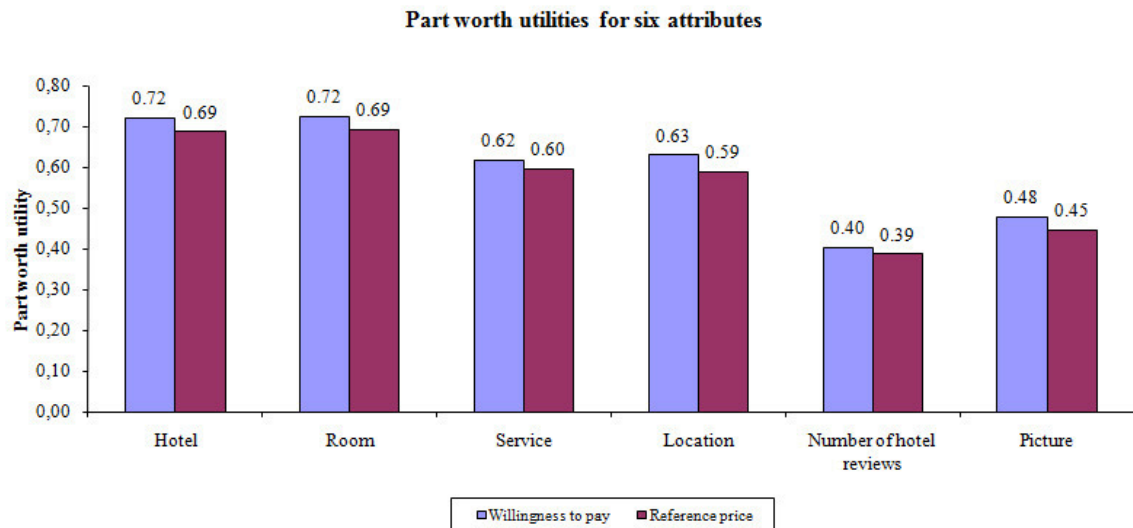
## 6.4 Results

### Sample characteristics

The sample comprises 54.5% female and 45.5% male respondents. About one third of the participants are between 40 and 49 years old (34.4%) and about one fifth between 50 and 59 years (21.4%). The groups of people from 30 to 39 and from 50 to 59 account for 14.4% each. 14.3% of the participants are 29 or younger and 15.5% are 60 years or older. Concerning education, 31.9% of the respondents graduated from university, 24.8% hold leaving certification and 26.8% who completed an apprenticeship. Most of them are white-collar workers (64.9%) followed by retired persons (13.4%), self-employed (10.1%) and students (7.9%). Non-working people represent 3.3% and people who are seeking work 0.5%. The sample consists of people who have a high affinity for the Internet using it at least several times a day (74.7%). Moreover, 16.1% of the respondents use the Internet once a day, and 9.3% at least once a week. 41.1% of the participants have made an online reservation for hotels before between two and five times and 36.2% six or more than six times. Only 11.2% of the respondents have never booked a hotel online before. However, 78.0% of this group indicate that they will do so in the future. 93.4% judge online consumer reviews to be very helpful or helpful.

## Preference analysis with conjoint data

In order to analyse part worth utilities for the attributes we estimate utility functions at the individual level first and aggregate these afterwards. For both willingness to pay and reference price the following part worth utilities are calculated at an aggregated basis (Figure 6.2).



**Figure 6.2:** Part worth utilities for six attributes: Willingness-to-pay versus reference price

From the relative span of one attribute utility the importance of each attribute can be calculated. Concerning willingness to pay, the results show that the attributes 'hotel' and 'room' are each responsible for 26% of the overall preference building. The 'service' and 'location' factors weigh 18% and 19% respectively. The attributes 'number of hotel reviews' and 'picture' are only of minor importance (8% for the former and 3% for the latter). Turning to reference price, the results are similar: 'hotel' and 'room' are again the most important attributes (26% for each attribute). 'Service' is responsible for 19% and 'location' for 18% of the overall preference building. For the attributes 'number of hotel reviews' and 'picture', exactly the same small weights as for willingness to pay are calculated.

In order to determine if, in general, the subjects' willingness to pay significantly differs from their reference price, we apply a Wilcoxon signed-rank test. The results show that the difference is significant at a level of  $p < 0.001$  for all hotels except for one. Interestingly, we find no significant difference between willingness to pay and the reference price when respondents evaluated the hotel which performed the worst in all review categories.

## Segmentation based on attribute importance

Using importance values on an aggregate level only, does not take into account that the sample might actually be heterogeneous while containing homogeneous groups at the same time. Therefore, we use individual importance values for cluster analysis in order to reveal possible homogeneous groups. In the present study, we use the TRN-32 software, applying the neural gas algorithm (Martinetz and Schulten, 1991) to perform the cluster analysis (Mazanec, 2001). In the first phase of the cluster analysis, we have to specify the numbers of clusters. Second, in order to find homogeneous groups the network needs to be trained. In the last phase, the output values are used to profile the segments. The

		Attribute importance in %						Share of cluster
		Hotel	Room	Service	Location	Number of reviews	Picture	
Segments	Environment	28.7	23.3	14.9	7.9	9.9	15.3	21.2%
	Indifferent	16.7	15.3	12.2	16.3	18.8	20.6	19.2%
	Interior	9.6	40.6	12.2	14.2	10.3	12.7	19.2%
	Service	14.5	14.2	29.3	17.8	13.7	10.6	18.4%
	Place	15.0	23.3	9.9	37.3	9.3	5.2	12.1%
	Atmosphere	36.8	6.7	35.7	7.1	7.6	6.0	7.1%
	Exterior	59.3	7.1	6.2	10.6	12.4	4.4	2.8%

**Table 6.2:** Attribute importance and the seven segments

TRN clustering approach favored a seven segment solution. The share (beginning with the highest) of the clusters as well as the values for attribute importance are shown in Table 6.2.

As the table shows, the first segment ‘environment’ includes one fifth of all cases. This segment comprises subjects who primarily focus on evaluations about the hotel in general and the hotel room. Subjects in the second segment (‘indifferent’) do not discriminate between different categories of evaluation. This segment includes marginally less subjects (19.2%) than the first segment. An equal amount of respondents are highly hotel room oriented (segment ‘interior’). 18.4% of the subjects attach importance to reviews on services (segment ‘service’). The fifth segment ‘place’ includes subjects who concentrate on the hotel’s location. The smallest segments are ‘atmosphere’ and ‘exterior’. For the segment ‘atmosphere’ the hotel in general and service are highly important compared to the other attributes whereas for the segment ‘exterior’ only the hotel in general is essential accounting for nearly 60% of overall importance.

## 6.5 Discussion and conclusion

The study aimed at measuring the influence of hotel guest reviews on customer hotel preferences in the context of booking hotels online. The results of our study show that the part worth utilities of consumer reviews are the highest for the hotel in general and for hotel rooms. Referring to our research question one, we can say that travelers using hotel reviews find it most useful if they have information on how their fellows evaluate the hotel’s environment. Contrary to this, the part worth utilities for the number of reviews are the lowest followed by picture. This means that consumers in general do not care much if many or only a few people have commented on a hotel before or, which picture of the hotel is shown. Comparing our preference scales, we could hardly find any differences concerning the part worth values for willingness to pay and for the reference price. However, when we compared the respondents’ willingness to pay with their reference price in general, we found significant differences between the two prices expect for the situation where a hotel performed poor in all review categories (research question 3). This is a noteworthy finding. Subjects do not discriminate between their willingness to pay and their reference price when the hotel has bad evaluations in general. This means that as long as at least one review category is good, people are willing to pay a higher price for a room than a price they perceive to be fair and adequate. This result corresponds to previous findings which show that positive reviews have a positive influence on the guests’ attitude toward a hotel (Vermeulen and Seegers, 2009).

With regards to importance values, we found differences between the six categories of consumer reviews examined. At a first glance, it seems that the most important review categories are hotel in general and room, each responsible for more than a fourth of the overall preference building. The number of reviews and which kinds of pictures are shown plays only a minor role. However, a closer look at the disaggregated basis (i.e. considering individual importance values for each category) reveals that taking only the aggregated importance values into account is rather myopic. Applying TRN, the cluster analysis resulted in seven different segments of people who evaluate the usefulness of review categories differently. This means we can answer our second research question that importance values for review categories differ among groups of users. Less than one fifth of the subjects do not discriminate between the categories assessed. All other six segments attach great importance to at least one or two review categories. People focusing on reviews of a hotel's environment have the biggest share among all segments followed by the group of subjects who attach importance to the hotel's room or to the service offered. Only a very small group of subjects judges reviews of the hotel in general as most important for their preference building.

## Managerial implications

The results discussed hold important managerial implications. Since our results show that people are prepared to pay more than they perceive fair and adequate, hotel managers should put some effort into finding out ways how to increase their customer's willingness to pay. More specifically, a hotel which performs well in at least one category can compensate for poor performance in other categories while increasing a consumer's willingness to pay. To conclude, travelers who search information on review platforms seem to be interested in different aspects of consumer reviews. Therefore, platform providers first need to determine their target group in order to satisfy their users' requirements best. For instance, users of HolidayCheck can search reviews matching their personal travel party composition such as couples, families etc. This is a first step in order to meet the needs of specific target groups. Our results show, however, that a further step to assure user's satisfaction includes considering different types of travelers e.g. focusing on reviews of the hotel's environment or atmosphere. Platform providers might offer different paths of information such as one path for the group 'environment'. This path could include reviews about the hotel in general and the hotel's equipment. The path for the group 'interior' might offer detailed reviews about the hotel room (e.g. cleanliness, view, bathroom, and room maid). Then, the user can choose the path s/he prefers. The reviews should be linked accordingly thereby ensuring that information relevant to more groups are shown to all of them. At the same time, information which is not interesting for one user group should not be shown in order to reduce information overload. To conclude, platform providers of consumer reviews have the possibility to directly reach niche markets through offering services adapted to users' needs.

## Limitations and further research

For reasons of practicability the survey was restricted to customers and users of the booking platform HolidayCheck. Since the survey was publicly accessible and the sampling was dependent on

self-selection, the results of the study cannot be seen as representative for the total of users booking online. The results can only show tendencies of consumer preferences, as the study did not entail a real booking situation. Netnography (a term that refers to ethnography adapted to the Internet) might reveal further insights into understanding users' booking behavior. As the willingness to pay indicated in a questionnaire might not match actual behavior, observational methods might uncover more truthful information (Kozinets, 1998, 2002, 2006; Langer and C., 2005).

Future research should focus on exploring if users expect additional categories to already existing ones when searching travel information on online review platforms. An example would be to include reviews on the quality of food and beverages also focusing on different allergies or, if the hotel is accessible for the disabled. Moreover, additional studies need to be conducted in order to learn more about the psychographics of different customer segments. Possible segmentation criteria could thus be how much money people are willing to spend on their holiday as well as the travel type. Such additional information provides valuable insights for both hotel managers and providers of review platforms as well as for consumers who plan their holidays using consumer reviews as a source of information.

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## **Part III**

# **Supply side: Seizing opportunities of the Internet**



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### Monitoring Web 2.0 – User Generated Content in the Hospitality Industry

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Brigitte Stangl and Barbara Riegler  
Presentation at TTRA 2010. Rockin' and Rollin' Down the Research River?  
San Antonio, Texas, USA: Compact disk.

On the supply side the increased importance of User Generated Content (UGC) forces hotel managers to place greater emphasis on monitoring their online reputation. The study at hand investigates the hospitality industry's attitude towards UGC as well as if and how the industry monitors online reviews of tourists. Data collected from an online survey conducted in German-speaking countries in Europe (Austria, Germany and Switzerland) are analyzed. The analysis of 693 completed questionnaires revealed that managers in all three countries assess evaluating UGC as highly important. This is also reflected in a high percentage of managers monitoring their hotels' reputation themselves and by not delegating the task to employees. Further, managers have a rather positive attitude towards negative reviews. However, only a minority uses social media for advertising purposes. Further results are presented and implications are discussed.

*Keywords:* Hospitality industry, user generated content, monitoring.

#### 7.1 Introduction

Social media such as blogs, media sharing sites, social contact sites, or rating platforms have fundamentally changed the usage of the Internet as a source of information as well as a channel for distributing information (Buhalis and Law, 2008; Pan et al., 2007; Xiang and Gretzel, 2009). Social media sites enable users to submit their opinions regarding other members of a community but also regarding various topics such as experiences, services, products, or organizations (Dellarocas, 2003). Research has been investigating the influence of this kind of interpersonal communication on consumers' decision-making processes and its impact on enterprises for many years (Beatty and Smith, 1987; Kiel and A., 1981). From a consumer's perspective researchers put a great deal of effort into understanding what motivates users to contribute to social media (Nardi et al., 2004; Stöckl

et al., 2006), why people use user generated content (UGC) to search for information (Bailay, 2005; Goldsmith and Horowitz, 2006; Gretzel and Park, 2007), what affects online buying decisions (Wen, 2008), or what website design is most advantageous in order to fulfill users' requirements (Engele et al., 2009; Kansa and Wilde, 2008). From a supply side perspective issues like the influence of UGC on destination marketing (Carson, 2008; Schmallegger and Carson, 2008) and on the hospitality industry (O'Conner et al., 2008; Ye et al., 2009) are examined.

Social media allows for online feedback and thus provides users with the opportunity to publicize experiences with enterprises (Dellarocas, 2003). Since users trust in their e-fellows' opinion, behavior of a whole community towards a specific enterprise may be affected (Gretzel and Park, 2007). According to Dellarocas (2003), the following activities of an enterprise may be affected: brand building and customer acquisition, product/service development and quality control, as well as supply chain quality assurance. Hence, businesses have to deal with opinions posted by customers or strangers. However, there is not enough research attempting at how enterprises should respond to negative or incorrect online word-of-mouth (eWOM) (Schmallegger and Carson, 2008). In order to be able to react to online contributions by customers businesses need to control and monitor social media sites. Yet, to the best knowledge of the authors there are no studies investigating if and how the hospitality industry is monitoring eWOM or its online reputation respectively. Hence, the study at hand focuses on these aspects, more particularly on monitoring online reputation from the perspective of hotels in German-speaking countries (Austria, Germany, and Switzerland). By analyzing 693 completed questionnaires the contribution of the study is multifaceted: i) insights are given in the frequency of monitoring UGC in hotels, who is responsible for this task and which methods are applied in order to monitor platforms on a regular basis; ii) light will be shed on if hotels are using social media platforms for marketing purposes; and iii) how hotels deal with negative reviews. Further, iv) correlations between hotel size, bed capacity, frequency of monitoring, attitude towards negative reviews, and the perceived importance of online reputation are revealed; and v) relationships between perceived importance of online reputation and actions to be considered after negative reviews appeared are examined.

## 7.2 Theoretical background

Corporate reputation is defined as the assessment by all relevant stakeholders over time with regard to their direct and indirect experience with a specific organization at any point of time in the value chain (Gotsi and Wilson, 2001; Wiedmann et al., 2002). Online reputation is not only influenced by information published from the supply side but also by content provided by customers. There is evidence that online representations diverge from each other depending on whether the demand or the supply side published the information (Choi et al., 2007; Tang et al., 2009). Hence, corporate online reputation is influenced by eWOM and therefore, there is a need for monitoring UGC. By monitoring UGC social media platforms could serve as a research community in which hotels enter into a dialogue with customers and listen to dialogues between customers (Cooke and Buckley, 2008). Hence, monitoring UGC assists in identifying new market trends. This is particularly worthwhile, since these platforms enable enterprises to actively listen to customers and gather feedback regarding the quality of products and services offered or sold (Dwivedi et al., 2007; Hennig-Thurau et al., 2004; Pitta and Fowler, 2005). Thus, social media platforms open new possibilities for market research in terms of a valuable source for detecting customers' wishes and needs. Furthermore, eWOM is

unbiased and voluntarily provided by customers as well as easily and freely accessible by businesses (Kozinets, 2002).

### 7.3 Conceptual framework and hypothesis development

Corporate reputation influences customer's intention to switch between suppliers. Hence, it positively influences the maintenance of regular customers as well as the acquisition of new ones (Buxel and Wiedmann, 2005; Caruana and Ewing, 2009; Eberl, 2006). Online reputation is influenced by eWOM which in turn is posted because customers are satisfied or dissatisfied concerning a product or service bought. Customer satisfaction has been investigated for decades because it not only leads to positive eWOM but also influences the intention to revisit a website and loyalty (Barnes and Vidgen, 2002; DeLone and McLean, 1992, 2003; Moon and Kim, 2001; Oliver et al., 1997; Parasuraman et al., 2005; Wolfinbarger and Gilly, 2001). Theories of disconfirmation such as contrast theory (Hovland et al., 1957) or expectancy disconfirmation theory (Oliver, 1980) stipulate that customer satisfaction depends on the degree of confirmation of expectancies on perceived product or service performance. Expectations are standards used to evaluate products and services utilized during a holiday. Disconfirmation appears if there is a positive or negative gap between expectancies and performance (Oliver and DeSarbo, 1988; Yuksel and Yuksel, 2001) leading to positive or negative word of mouth. In an online environment opinions regarding satisfaction with a company disseminate quickly due to social media and may affect corporate reputation (Dellarocas, 2003). According to Clark (2001) the amount of user generated commentaries increases with the size and the awareness of a company. Thus, managers of well known and larger hotels should perceive online reputation as more important.

*H1: The hotel's level of grading correlates with the perceived importance of online reputation.*

*H2: The hotel's bed capacity correlates with the perceived importance of online reputation.*

According to Yuksel and Yuksel (2001) reliable customer feedback is essential in order to be able to improve management strategies. Yet, especially expectancy–value theories (Bagozzi, 1981) such as theory of reasoned action (Fishbein and Ajzen, 1975) and the technology acceptance model (Davis, 1989) stipulate that peoples intention to act depends on the assessment of the behaviors' impact on the performance. Thus, cognitive decision rules are applied in order to evaluate possible performance improvements due to a certain action (Bagozzi, 1982). Furthermore, past usage significantly influences ease of use. A system that is easier to use positively influences attitude and consequently positive attitude impacts future usage (Bajaj and Nidumolu, 1998). Hence, there is a relationship between attitude or perceived importance respectively and behavior, which in our case is monitoring UGC. Moreover, experience with an information system influences behavior. Thus, we propose:

*H3: Perceived importance of online reputation correlates with the frequency of monitoring UGC.*

*H4: The hotel's active application of social media platforms for marketing activities correlates with the frequency of monitoring these platforms.*

Social media platforms offer the possibility of directly booking online. Ratings as well as reviews on these platforms influence customer's purchase decision. Therefore, particularly companies which sell their services online should keep an eye on their online reputation in order to gain competitive advantages (Füllhaas, 2008). Reviews and ratings need to be considered by suppliers because there

is evidence that consumers trust in content published by other customers (Fesenmaier et al., 2008). Negative online reviews have an even greater influence than positive ones (Park and Lee, 2009). Thus, negative reviews reduce the probability of a positive buying/booking decision (Ricci and Wietsma, 2006; Vermeulen and Seegers, 2008).

*H5: There are differences between the quantity of received bookings through booking platforms and the frequency of monitoring UGC.*

In order to evaluate if customer's perception of service or product quality is in accordance with the hotel's own perception of quality, UGC is very helpful. Bad online reviews negatively influence online reputation. Park and Lee (2009) revealed that there is an even higher effect of negative eWOM than of positive one. Moreover, it is shown that there are differences concerning the type of product involved (Park and Lee, 2009). Nevertheless, other studies discovered that the total number of reviews in combination with a balanced mixture of positive and negative reviews is evaluated to be authentic by customers. Further, the more positive reviews are available the less attention is given to negative ones. Therefore, it should be of great interest for every hotel to receive as much reviews as possible (Lee et al., 2008; Reinecke, 2008). Efficient complaint handling, the ability to accept criticism, and conducting dialogues with complaining customers could lead to an improvement of corporate online reputation. Hence, the right strategy of dealing with negative eWOM helps the hotel in strengthening a positive online reputation (Bunting and Lipski, 2000; Harrison-Walker, 2001). Thus, we hypothesize the following:

*H6: Hotel's attitude that negative online reviews:*

- a) can help to improve service quality*
  - b) are important for adjusting and further developing services*
  - c) are helpful as a source of detecting customers' wishes and needs*
  - d) are necessary in order that consumers perceive a platform to be authentic*
- correlates with the perceived importance of being reviewed by customers.*

*H7: Perceived importance of online reputation correlates with actions to be taken in case of detecting negative reviews.*

## 7.4 Methodology

After a thorough literature review six experts are interviewed in order to reveal further relevant aspects such as which platforms are the most important in terms of distributing and advertising hotel services in Austria, Germany, and Switzerland. A self-administered questionnaire is designed to measure attitude towards and usage of social media in the hospitality industry as well as intended behavior in case of negative online-customer feedback. Furthermore, background data concerning the hotels is surveyed. A pre-test was conducted in order to provide clarity and readability of the questionnaire. In order to make as many hotels aware of the survey as possible the survey was posted in an electronic newsletter of tourism related organizations in the three countries. Furthermore, the survey was directly mailed to hotels, whereby after the initial e-mail two follow-up e-mails were sent out. This procedure was designed to maximize the return rate and lasted for a three month period

(15th July to 15th October 2009). The data is analyzed by applying contingency tables, correlation analysis, and one-way ANOVA. In order to test significances Monte Carlo Simulation (confidence interval: 95%, 10,000 samples) is used to account for expected frequencies smaller than five.

## 7.5 Results

### Sample profile

The survey resulted in 693 usable questionnaires, consisting of 202 questionnaires of Austrian respondents, 305 of German, and 186 of Swiss. Concerning the grading scheme, the sample comprises 46.0% four to five star hotels, 42.0% three star, 5.6% one to two star hotels, and 6.3% of hotels not being graded. The majority of hotels (77.8%) are privately owned, 6.2% are a member of a national hotel group, 11.8% belong to an international hotel group. About one third (34.3%) of the hotels provide a capacity of 31 to 70 beds, 28.9% about 71 to 150, 21.2% supply more than 150 beds, and only about 15.6% have less than 30 beds to offer. Furthermore, travelers mainly use the telephone/fax (24.0%), corporate websites (20.6%), as well as booking platforms (19.6%) to make their reservations. On average 61.0% of the guests stay for one to three nights, 35.1% four to seven nights, and the rest longer than seven nights. 61.7% of the guests accommodated in hotels are leisure tourists while 38.3% are business travelers.

### Descriptive results

77.1% of the respondents consider online reputation as very important, 21.5% as important, and 1.5% as not that important or not important at all. In charge for monitoring online reputation in general is the top management in 68.0% followed by the desk clerk (33.0%). About one third (34.3%) of the hotels regard being graded by customers as very important, 45.2% as important. 79.5% judge the importance of travelers publishing reviews as very important or important, 20.5% as not important. Nevertheless, only 44.2% actively motivate their guests to review the hotel online.

Regarding the frequency of monitoring booking platforms which provide users with hotel ratings Table 7.1 shows that the most frequently monitored platform is Booking.com followed by HRS (Hotel Reservation System) and HolidayCheck. However, there are at least 20% of hotels which never monitor any of the platforms mentioned. Concerning the person in charge of monitoring UGC, again in a majority of the hotels it is a task of the top management (65.2%) followed by the desk clerk in 57.0%. In 79.7% the top management and desk clerks respectively are doing a manual keyword search using search engines in order to find published reviews. 48.3% use automatic feeds or alerts and 10.5% draw on a specialised agency.

39.1% of the hotels use social media platforms for marketing purposes. 72.0% of those hotels apply social network platforms (e.g. Facebook, Twitter, MySpace), 69.0% media sharing platforms (e.g. YouTube, Flickr, Panoramio), and 33.3% use blog platforms as a marketing tool. Further, 21.0% of the hotels operate their own corporate blog, 64.9% of those corporate blogs are imbedded in the hotel's own website.

More than half (51.8%) of the hotels totally agree and 27.7% agree that negative reviews can help to improve service quality. 36.8% totally agree and 32.8% agree that negative reviews are important



	Daily	Once a week	Once a month	Once per 1\4 year	Less often	Never
Tripadvisor	5.9	22.4	22.1	5.3	6.8	37.5
HolidayCheck	10.0	30.3	26.6	8.2	5.2	19.8
Expedia	4.2	20.3	21.8	7.1	8.5	38.1
Booking.com	12.4	35.8	22.2	5.9	4.6	19.0
HRS	12.0	33.6	23.8	5.3	5.5	19.8
Tiscover	4.6	12.7	13.0	4.0	11.1	54.5
Zoover	1.2	2.7	5.2	2.2	6.9	81.8

(in percentages, n=693)

**Table 7.1:** *Frequency of monitoring platforms*

for adjusting and further developing services. More than two third (66.8%) comply with negative reviews being a possible source of detecting customers' wishes and needs. However, only 16.9% totally agree that negative reviews are important for the platform to be found authentic by the customers, and 32.9% totally disagree or disagree. Concerning actions undertaken after negative reviews appeared, 14.2% of the respondents who perceive online reputation as very important and 20.8% who perceive it as important would ignore negative reviews. 10.3% and 8.1% respectively would institute legal actions. Further, 79.4% of hotels who perceive online reputation as very important are likely to get in contact with the author while 65.4% would contact the provider of a platform. 73.6% would publicly comment on the review and 86.1% of the hotels also consider thinking about the quality of services offered.

## Hypothesis testing

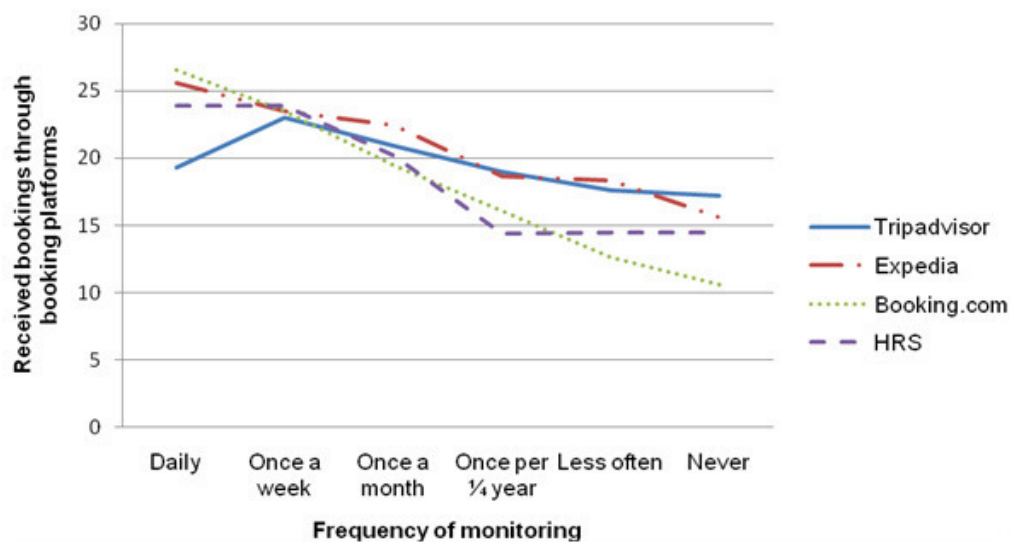
Results of contingency tables show that the level of grading ( $\chi^2 = 34.4, p < 0.007, \text{Cramer} - V = 0.129, p < 0.001$ ) as well as bed capacity ( $\chi^2 = 22.2, p < 0.006, \text{Cramer} - V = 0.103, p < 0.008$ ) significantly correlate with perceived importance of online reputation. Since Cramer-V is close to zero correlations are significant but not very strong.

There are significant relationships between perceived importance of online reputation (e-reputation) and the frequency of monitoring UGC for the platforms Tripadvisor, HolidayCheck, Expedia, Booking.com, and HRS. Not significant is the relationship for Tiscover and Zoover (Table 7.2). Although, Cramer-V is rather close to zero correlations are significant. The same significant relationships appeared for correlations between the active use of social media for marketing purposes and the frequency of monitoring UGC (Hypothesis 4). Thus, there are significant correlations for all platforms but not for Tiscover and Zoover.

In order to test if there are differences between the quantity of received bookings through booking platforms and the frequency of monitoring UGC (Hypotheses 5) a one-way ANOVA is applied with received bookings through booking platforms as the dependent variable. There are significant differences for Tripadvisor ( $p < 0.008$ ), Expedia ( $p < 0.001$ ), Booking.com ( $p < 0.001$ ), and HRS ( $p < 0.001$ ). However, there are no differences for HolidayCheck ( $p < 0.074$ ), Tiscover ( $p < 0.222$ ), and Zoover ( $p < 0.228$ ). Figure 7.1 depicts the mean-value diagram for the platforms, which show statistical significant results.

	$\chi^2$	p-value	Cramer-V	p-value
Tripadvisor	57.15	0.000	0.17	< 0.001
HolidayCheck	71.29	0.000	0.19	< 0.001
Expedia	38.87	0.005	0.14	< 0.001
Booking.com	41.51	0.005	0.14	< 0.001
HRS	46.93	0.003	0.15	< 0.001
Tiscover	24.20	(0.096)	0.11	(0.062)
Zoover	7.02	(0.788)	0.06	(0.957)

**Table 7.2:** Correlation of perceived importance of e-reputation with frequency of monitoring



**Figure 7.1:** Mean-value diagram: Received bookings and frequency of monitoring

Hypothesis 6 is supported because there are positive and at a 99% level significant correlations between a hotel's attitude towards negative online reviews and the perceived importance of being reviewed by customers. There are the following highly significant correlation coefficients (Spearman-Rho, all  $p < 0.001$ ) concerning negative online reviews: helps to improve service quality  $r = 0.287$ ; important for adjusting and further developing services  $r = 0.288$ ; helpful source for detecting customers' wishes and needs  $r = 0.294$ ; necessary in order that consumers' perceive a platform to be authentic  $r = 0.170$ .

Table 7.3 shows that the relationship between perceived importance of online reputation and actions to be considered after negative reviews appeared such as contacting the author, publicly commenting on reviews, and thinking about the service quality are significant. While ignoring negative reviews, instituting legal actions, and contacting the platform provider are not significant.

## 7.6 Discussion and conclusion

The study aimed at gaining an overview if hotels in German-speaking countries in Europe monitor UGC and if hotels take advantage of social media as a marketing tool. Results show that the hospitality

	$\chi^2$	p-value	Cramer-V	p-value
Ignore negative review	8.27	0.050	0.11	<0.041
Legal actions	6.17	(0.096)	0.09	(0.104)
Contact the author	26.67	0.000	0.20	< 0.001
Contact the platform provider	5.92	(0.109)	0.09	(0.116)
Publicly comment on review	24.04	0.000	0.19	< 0.001
Think about service quality	27.52	0.000	0.20	< 0.001

**Table 7.3:** *Correlation of perceived importance of e-reputation with actions after negative UGC*

industry is aware of the importance of online reputation. The majority of hotel managers do not delegate the task of monitoring online reputation or gathering feedback about the hotel in social media to employees. Although it is time consuming, top management followed by desk clerks manually enter keywords into search engines for the purpose of searching for UGC about the respective hotel. The study shows that awareness of online reputation correlates with the hotel's level of grading as well as bed capacity. Different platforms such as HRS, Booking.com, HolidayCheck, or Tripadvisor are monitored frequently. However, there are still more than 20% of hotels not monitoring any of the platforms experts perceive as being the most important for tourist destinations in German speaking countries in Europe. Dellarocas (2003) suggests that managers should continually monitor social media in order to obtain relevant information about their business.

Further, the study gives insights into the usage of social media for marketing purposes. Although a minority of the hotels (39%) takes advantage of this marketing tool, 59.4% of those who actively apply social media platforms are regularly monitoring the content provided by the customers.

Concerning negative online reviews, the majority in the hospitality industry has a rather positive attitude. Negative UGC about ones hotel is seen as a chance for further improving services or finding out more about needs and wishes of customers. Regarding actions which are considered after negative UGC appeared Schmallegger and Carson (2008) argue that correcting unfavorable opinions directly on the platform would be less acceptable. As the results of the study at hand show, the majority of hotels would get into contact with the author or comment on negative reviews directly on the platform. Further, about 20% would just ignore it and about 10% consider instituting legal actions.

Perceived importance of online reputation correlates with the frequency of monitoring and actions to be considered after negative reviews appeared. Moreover, perceived importance of being reviewed by customers correlates with the attitude towards negative reviews such as negative reviews help to improve service quality and to detect customers' wishes and needs. Finally, it is shown that there are differences between the quantity of received bookings through booking platforms and the frequency of monitoring.

The study at hand presented first insights into how the hospitality industry deals with social media. Further and more sophisticated analysis is needed as well as comparisons between Austria, Germany, and Switzerland in order to get further insights. However, a survey distributed by mail as well as a longitudinal design would allow for even more valuable insights.

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## CHAPTER 8

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### Are possibilities of the Internet tapped to the full potential? A systematic inventory of 3D applications in the tourism industry

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The Internet allows for the presentation of services and products in various creative ways. The present chapter investigates if the tourism industry taps the possibilities of the Internet to its full potential. By applying a content analysis, the websites of hotels, as well as museums of 20 different European cities are examined. Results show that differences exist between cities, which account for the most overnight stays, and cities which account for the smallest number of overnight stays in Europe. Furthermore, differences between hotel and museum websites are revealed concerning the use of 3D applications.

*Keywords:* Hospitality industry, museum, 3D website-applications.

#### 8.1 Introduction

Tourism services cannot be tested before consumption and usually they are bought away from the place where they are consumed, as well as ahead of time. Consequently, the tourism industry highly relies on the presentation and description of services offered (Cheong, 1995). With the continuous development of the Internet, the opportunities for product and service presentations have increased on the one hand (Quebeck, 1999). On the other hand, consumers have become more liberated and their demands have become more sophisticated for online information sources (Cheong, 1995). Users expect websites that offer more than just basic information and simple applications respectively (Perfetti, 2001). Users are looking for websites that offer some additional benefit (Raskin, 1999). Hence, websites need to provide interesting applications in order to entertain users without reducing usability.

Nowadays, many tourism related enterprises already show their location on a 2D map and allow users to contribute to the content on social media sites, as well as on corporate websites (Mitsche et al.,



2008). Alpcan et al. (2007) argue that user generated content is only an intermediate step towards 3D Internet. In former times, high computational costs, data transfer costs, and network bandwidth have been bottlenecks for the usage of multimedia and 3D applications. However, this argument lost ground (Rakkolainen and Vainio, 2001). The advantages of 3D applications are manifold. They facilitate the marketing of services, enhance interaction and communication, and boost business potentialities such as virtually ‘trying before buying’ and ‘interactive shopping’. Due to advances in technology, it is possible to mimic common 3D information architecture. Hence, virtual 3D online experiences accommodate users with their learning habits because we are used to navigate through a 3D physical world every day (Alpcan et al., 2007).

However, to the best of the researchers’ knowledge, there are no studies, which consider how well the tourism industry complies with the request for 3D applications. Thus, the study at hand investigates hotel websites as well as websites offered by museums. This research contributes to literature in various ways by: i) investigating if the potential of 3D applications is actually tapped; ii) providing insights into which applications are used on websites; and iii) by shedding light on the design of 3D applications offered by hotel websites, as well as by museum websites.

## 8.2 Theoretical background

Information system (IS) theory comprises several fundamental theories dealing with technology adoption. Among the most popular are the Diffusion of Innovation Theory (Rogers, 1995, 2003), Theory of Reasoned Action (Fishbein and Ajzen, 1975), Technology Acceptance Model (Davis, 1989), and Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003). Several researchers stipulate that an IS has good prospective of getting accepted if it is able to bring the user into a state of flow (Csikszentmihalyi, 1977; Hoffman and Novak, 1996; Trevino and Webster, 1992). In order to get into a flow, a sufficiently motivated user experiences a balance between her/his skills and challenges of interaction with the information system. According to Marchionini and Shneiderman (1988), users who browse the web are either investigating or learning. The first group focuses on acquiring knowledge while the second one is targeted on discovering knowledge gaps (Marchionini, 2006). Hence, depending on how people search for information they acquire and assimilate information in a different way.

Learning style theories investigate how people gather information, make decisions, and interact with their environment (Cassidy, 2004; Coffield et al., 2004). Various researchers focus on investigating how people process information. Different preferences for learning information, such as visual, aural, read/write, and kinesthetic learning styles, exist. Most people have a preference for a combination of different learning styles (Felder and Silverman, 1988; Fleming and Baume, 2006; Fleming and Mills, 1992; Kolb, 1976). Learning theory also stipulates that fun and inspiration are positively linked to the success of learning (Hooper-Greenhill, 2004; Moscardo, 1996). However, website design literature has hardly included factors such as learning styles, although related issues to this are highly relevant (Holtze, 2000; Sabry and Baldwin, 2003).

Previous research argues that, on the one hand, users demand information systems that complete inquiries effectively and successfully (De Marsico and Levialdi, 2004; Nielsen, 1999), and on the other hand, they require systems that also cater individual needs (Sullivan, 1997). People apply different

kinds of strategies for retrieving information depending on their knowledge, on their experience, as well as on their learning style (De Marsico and Levialdi, 2004). For instance, content issues drive the satisfaction of verbalizers, people who prefer learning by reading/writing. The preference of visual learners is influenced mainly by design aspects (Stangl and Dickinger, 2010).

In general, the Internet is a synaesthetic medium that allows for the presentation of the same information in different modes (Waterworth, 1997). Hence, the Internet has the potential to cater the needs of all different kinds of learning styles. It allows for experiential design and for conveying aspects of real presence – not just simply presenting information (Waterworth, 1999). A study by Mitsche et al. (2008) reveals that symbolic and 3D applications improve the experience of users. In doing so, interpretative tools are provided by connecting for instance maps with 3D object presentations and additional information. Hence, the Internet allows for virtually entering sights while adding interpretative value (Mitsche et al., 2008).

According to Waterworth (1999, p. 6), the most important aspect of 3D is to eliminate “*the need to use linguistic interpretation to make sense of interfaces and to free cognitive capacity for tasks other than navigation.*” The ‘Information Islands’ (Waterworth, 1999, p. 126) model represents different units which are classified based on the relatedness of information. Thus, each major service–class (e.g. communication, tourism services) exists as an island and each island comprises buildings which contain features intended to assist users in navigation (Waterworth, 1999). Regarding navigation and usability in general, guidelines are discussed in the context of 2D websites or interfaces (Nielsen, 1999; Shneiderman and Hochheiser, 2001; Shneiderman, 2003; Visciola, 2003, e.g.). However, there is evidence that many 3D environments leave the user without any assistance concerning the usage. This fact can lead to navigational problems especially for novice users. Users need electronic navigation aids to increase the efficiency of exploring and learning (Luca Chittaro, 2004). Users also need to get instructions on how to interact with 3D objects, particularly where obtaining additional information is a crucial part of the experience (e.g. in virtual museums, for e–commerce sites, or for e–learning).

In order to engage users and to provide an enjoyable navigation experience “*attraction websites already include interactive maps, 3D applications, virtual tours, online exhibitions, interactive learning resources, games and fun tools, online collections, user communication, community aspects, personalization and online shops.*” (Mitsche et al., 2008, p. 324). Innovative websites sometimes use interactive maps as a starting point for introducing 3D applications or other multimedia tools.

It can be concluded that different information formats (such as text, audio, video, and 3D material) support different learning styles. The study at hand examines what kind of 3D applications is available on websites. We thereby compare two categories of websites, which are representative for both tier one and tier two. Tier one comprises tourism related services which are only existent because of tourism. Examples for this are hotels. In contrast, tier two incorporates all tourism related products which are used by both tourists and local residents such as museums (Xiang et al., 2008). In addition to that, the personal experience differs between museums and hotels. Museums are primarily visited, either online or in reality, to learn about authentic objects. People stay in museums rather short compared to a stay in a hotel where the ambience and the interaction with the staff are much more important than in museums. Briefly summarized, this study looks for more insights into the usage and mix of 3D applications presented on the websites of hotels and museums by a) investigating if websites of

museums differ from hotel websites in their use of 3D applications (research question 1), and b) by exploring the sophistication of technology concerning 3D applications (research question 2).

### 8.3 Methodology

In the present study, the data collection comprises five different steps. In a first step, European cities with the most overnight stays, on the one hand, and the least overnight stays, on the other hand, were identified. In doing so, the TourMIS database is used. TourMIS is an online database containing market research data for the tourism management provided by destination management organizations (Wöber, 2002, <http://tourmis.wu--wien.ac.at/>). In order to avoid incomplete data sets, the city tourism statistics from the year 2006 is used. In total, 20 European cities are chosen. Of these, 10 cities represent the most frequently visited cities in Europe (among these are in descending order London, Paris, Rome, Dublin, Berlin, Barcelona, Madrid, Prague, Vienna, and Munich), as well as 10 European cities with the lowest number of visitors (among these are in ascending order Eisenstadt, St. Poelten, Novi Sad, Rijeka, Braga, Olmuetz, Udine, Bregenz, Cagliari, and Klagenfurt). In the next step, step 2, websites of museums as well as hotels of these 20 cities are inspected concerning their usage of 3D applications. In order to identify as many websites as possible, combinations of the following words are used: '3D', '3D tour', 'hotel', 'museum' and the name of a city (e.g. London, Eisenstadt etc.). The words 'hotel' and 'museum' are appropriate since these words are the same in different languages. Then, a keyword search is conducted using the search engine Google. For each search inquiry, the first 20 results listed by the search engine are analyzed by taking into account organic links only. More specifically, double entries are not considered for the subsequent analysis. This means that for each city, 40 links are collected including 20 links for hotels and 20 links for museums. In total, a sample of 800 links are collected and analyzed whether these links contain 3D applications or not.

In order to gather systematically, further details concerning 3D applications used on websites, in step 3, a content analysis is conducted. Originally, this research technique is used for quantitatively analyzing texts in an objective and systematic way (Berelson, 1954). However, according to Krippendorff (2004) this technique can further be extended to other types of content such as pictures, signs, or symbols. Hence, to examine 3D applications systematically, a catalogue of criteria is developed. Each criterion needs to be unique, i.e. it must be different from all the other criteria in the catalogue (Früh, 2004). In a first phase, criteria that have been identified in previous literature are included. This collection of criteria thus refers to theory driven criteria. The theory driven catalogue of criteria is extended in the second phase by additional criteria. These additional criteria are found while analyzing a convenience sample of ten different websites containing 3D applications (i.e. data driven criteria). Thirdly, further criteria are included into the catalogue, which emerged during the data collection process and were not accounted for during the first two phases of developing the catalogue of criteria. Examples for criteria of the catalogue are: availability of task bar, zoom facilities, technology used, maps presented, advertising shown, full screen, navigation, or further information.

The fourth stage of data collection refers to coding the content criteria found on the websites. Each of the 800 websites is accessed and information about 3D applications is collected and appropriately coded based on the catalogue of criteria. The criteria are coded on a dichotomous scale (value '1' for a feature that is available / value '0' for a feature that is not available), as well as on a rating scale where variation can be observed (e.g. value '1' to '5'). Finally, in step 5, the collected data is analyzed using

Steps	Tools	Realization
Step 1	TourMIS	Deciding which cities should be analyzed: 20 European cities: comprising ten cities featuring the most overnight stays and ten cities having the least overnight stays.
Step 2	Search engine Google	Usage of keywords in order to search for websites containing 3D applications.
Step 3	Catalogue of criteria	Development of a catalogue of criteria is based on literature as well as on accessing a convenience sample of ten websites including 3D applications. Each link/website is accessed and data is collected based on the catalogue of criteria.
Step 4	SPSS	Data coding
Step 5	SPSS	Data evaluation

**Table 8.1:** Five steps of the research process regarding 3D applications in the tourism industry

contingency tables and correlation analysis. A summary of the procedure is given in Table 8.1.

## 8.4 Results

As described in the method section, the sample includes 20 European cities whereby 10 cities represent cities with the highest number of overnights stays per year (further referred to as ‘group one’) and 10 cities represent cities with the lowest number of visitors (further referred to as ‘group two’). In total, 800 websites are analyzed. More specifically, for each city 20 museum websites and 20 hotel websites are evaluated. Referring to group one, only 195 out of 400 websites provide 3D applications. Splitting this figure further into tiers, 125 hotel websites and 70 museum websites use 3D applications for their web presence. The number of websites with 3D applications considerably decreases when investigating cities with the least overnight stays per year. In this group (group two), only 31 hotel sites and 8 museum sites are identified which provide 3D applications. Due to this small number of relevant websites, group two is excluded from further analysis.

Going more into detail, the programming language of the majority of 3D applications is based on Java (61%), Quicktime (19%), and Flash (20%). Some 3D applications are embedded into the website, others are opened using a separate window. The majority of 69% of 3D applications examined start automatically when selected. One third needs to be started through a mouse click. Regarding buttons needed to navigate through an application, many of these (more than one third) are neither described nor intuitive. Regarding the amount and mix of 3D applications provided on one website, 13% of the websites provide only one single 3D application. Further, about 46% of the websites offer a mix between two and ten different 3D applications, 32% between 11 and 25, and 9% provide more than 25 different 3D applications. Talking about the ‘navigation’ between these applications, most of them are organized as pictures (44%), followed by lists (24%), and maps (14%). Only a few navigation facilities include a combination of pictures, written information and maps (4%). Concerning the presentation of full screens, only 133 out of the 195 websites, which provide 3D applications, offer this feature. Talking about the criterion ‘advertising’, in most cases (50%) the 3D application did not include any advertisement. However, the analysis shows that three different types of advertisements within a 3D application are used. The most common way is to promote the web designer’s name. Another way is to advertise the hotel’s or the museum’s name in the 3D application. In some cases, the advertisement included both the name of the hotel/museum, as well as the name of web designer.

## 8.5 Discussion and conclusion

This study aimed at investigating the usage and mix of 3D applications presented on tourism-related websites of different European cities. In order to compare tier one with tier two, the content of websites of hotels, as well as of museums was analyzed. The results showed that the use of 3D applications is positively related to the number of overnight stays. More specifically, major city tourism spots such as London, Paris, and Rome are more dedicated towards innovative technology compared to destinations where tourism only plays a minor role. This is, of course, no surprise since marketing budgets of major tourism destinations are much higher compared to those of rather unimportant tourism destinations. In addition, destination marketing organizations often aim at getting competitive advantage through showing and clearly stating differences to other tourism spots.

Research question 1 investigated if websites of museums differ from hotel websites in their use of 3D applications. As the results showed, the number of hotels which use 3D applications on their websites is slightly higher compared to museums. It appears that hotels have an interest in communicating their atmosphere and facilities to prospects. In research question 2 it was examined if the technology concerning 3D applications is sophisticated. The results show that programming languages are Java, Flash, and Quicktime and that approximately one third of all analyzed websites provide a mix of at least a dozen different 3D applications. Pertaining to navigation, existing 3D applications hardly provide users with descriptions deteriorating the efficiency of learning and exploring as well as hindering the acceptance (Luca Chittaro, 2004).

The results of the present study showed that the tourism industry has not yet tapped the Internet and communication technology to the full potential. On the contrary, 3D applications are sparsely used on websites. Despite the numerous advantages and possibilities of the Internet for marketing purposes that literature mentions, it appears that both hotels and museums miss the opportunity to present themselves in a creative, innovative way. In doing so, companies pass up the chance to meet their customers' specialized needs such as preferences for different learning styles. However, an innovative and open-minded web presence could help differentiating and positioning.

This study suffers from several caveats. First, only 20 city tourism destinations were inspected concerning their use of 3D application. A further restriction refers to the fact that only websites of museums and hotels were included into the analysis. In doing so, other cultural or experiential places, which also offer 3D applications on their websites (such as churches, theaters or restaurants) are excluded. In addition, limiting the key word search to some words bears the risk that not only highly relevant links are listed among the first results. Some websites do not explicitly mention '3D' or '3D tour' in the text but just use an application of that kind. More research is needed as to the ease of access to these applications. For instance, instead of relying on a search engine other techniques such as awards for innovative web design could be used as a proxy to locate websites that intensively use different kinds of information technology applications.

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## **Part IV**

# **Measurement issues: Website performance and emotional mental models**





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### Tourism website performance: A formative measurement approach

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Increased use of the Internet to access information and as a booking tool has greatly impacted the tourism industry while simultaneously calling attention to research on website performance and evaluation. However, almost all multi-item measures being used to evaluate different aspects of website performance are conceptualized as reflective models. After a thorough review of the literature and an in-depth discussion on measurement, a theory-based alternative, formative approach for website performance is suggested. The scope of the construct comprises eight dimensions: system availability, ease of use, usefulness, navigational challenge, website design, content quality, trust, and enjoyment. In order to test the model empirically, it is linked to outcome measures commonly examined in this context (satisfaction, value and loyalty). Information from 445 questionnaires completed by travelers show that the formative index works well. Findings are confirmed through cross-validation. The aim of the study is to develop a sound measure which allows for shorter questionnaires as well as easy comparisons across websites.

*Keywords:* Website evaluation, formative measurement, reflective measurement, structural equation modeling.

### 9.1 Introduction

Nowadays high-quality websites are critical in tourism because travelers increasingly search for information online (Bieger and Laesser, 2004; Crompton, 1979; Gursoy and McCleary, 2004; Vogt and Fesenmaier, 1998). Not surprisingly, tourists demand well-designed websites, which not only provide accurate information but are easy to navigate (Chung and Law, 2003; Lu, 2004). Therefore, website designers as well as scientists in the field of tourism, marketing, and information systems make great efforts to conceptualize and operationalize different aspects of website performance (Park and Gretzel, 2007). In doing so, the vast majority uses reflectively measured constructs to investigate antecedents

of website quality as well as outcome measures such as satisfaction, positive word-of-mouth, or intention to use. Among the most commonly used antecedents are ease of use and usefulness (Davis, 1989), enjoyment, website design, and content quality, to name a few (De Marsico and Levialdi, 2004; Parasuraman et al., 2005; Van der Heijden, 2003; Venkatesh et al., 2003). But recently discussions have shifted towards a focus on the suitability of multiple item measurement. In 2005, Rossiter (2005) summarized this issue in his famous paper “Reminder: a horse is a horse.” There is also an ongoing debate about how to appropriately conceptualize and operationalize latent constructs (Collier and Bienstock, 2009; Diamantopoulos, 2006; Rossiter, 2002). Researchers argue that based on thorough theoretical considerations, certain constructs might be better represented by formative rather than by reflective indicators (Diamantopoulos and Winklhofer, 2001). This issue is also looked at from various perspectives in the context of information systems (IS). For instance, Petter et al. (2007) carried out a literature review investigating misspecifications made in previous research and discussed the implications caused thereby. Moreover, in an extension of the technology acceptance model, Mathieson et al. (2001) include both reflective and formative concepts. Collier and Bienstock (2009) recently compared formative and reflective measurement for e-service quality. Gable et al. (2008) developed an index for IS impact.

There are some studies in the field of formative measurement in an online context, but there is still a need for research on the development of an alternative measurement for website performance in tourism. The present study addresses this void by developing a formative measurement for website performance. Thus, the contribution of this study is multifaceted: i) the paper provides an overview of relevant concepts regarding website performance and quality and discusses the applied measurement approaches; ii) it demonstrates how a parsimonious formative measure for website performance is developed, tested, and cross-validated; and iii) there is a discussion of theoretical as well as managerial implications.

The remainder of the article is organized as follows: First, we provide insight into the conceptualization of constructs used for evaluating information systems in general and specifically for websites. Then, conceptual differences between formative and reflective measures are identified. Next, we outline theoretical issues concerning index construction. The following section presents the conceptual development of a formative measurement for website performance and provides empirical results as well as a cross-validation. The paper closes with a discussion and a summary of future implications.

## 9.2 Theoretical background

### 9.2.1 Approaches for website evaluation

The evaluation of websites and online shops has been a highly researched topic in the last decade not only by scientists in the field of IS but also in Marketing and Tourism. A majority of studies are based on, or extend the most popular cognitive behavioral models such as the Theory of Reasoned Action (Fishbein and Ajzen, 1975), Theory of Planned Behavior (Ajzen, 1991), Technology Acceptance Model (Davis, 1989) and Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003). In the field of marketing, the impact of antecedents on website quality and satisfaction are examined extensively (Barnes and Vidgen, 2002; DeLone and McLean, 2003; Parasuraman et al.,

2005; Wolfinbarger and Gilly, 2001). DeLone and McLean (2003, 1992) or more recently Park and Gretzel (2007) did a meta-analysis revealing the most examined drivers of website performance. Table 9.1 provides an overview of articles which either developed a model for website performance, a measurement instrument or provide a meta-analysis regarding website evaluation.

One characteristic that an overwhelming majority of constructs mentioned in Table 9.1 have in common is the fact that they are measured by reflective latent variables. However, there is increasing debate about the appropriateness of reflectively measured constructs (Diamantopoulos and Winklhofer, 2001; Edwards and Bagozzi, 2000; MacKenzie et al., 2005). Alternative, formative measurement approaches have been introduced in some fields. Among them are e-service quality (Collier and Bienstock, 2006, 2009; Hsu, 2008), trustworthiness (Serva et al., 2005) as well as IS success (Gable et al., 2008), and effectiveness (Scott, 1994). According to Diamantopoulos and Winklhofer (2001) there is a need for critically reflecting on which approach is appropriate for which research question.

Thorough theoretical considerations are imperative to being able to choose the correct measurement perspective (Diamantopoulos and Winklhofer, 2001; Rossiter, 2002). This in-depth theoretical foundation is essential because there are fundamental differences between the two alternatives. Therefore, the next paragraphs first highlight the differences between the two paradigms then clarify why the formative approach is the correct one given the present research setting.

As the name indicates, reflectively conceptualized measures reflect changes in the construct in its indicators (Diamantopoulos, 2006). For reflective constructs, items are “*chosen randomly from the universe of items relating to the construct of interest*” ( DeVellis, 1991, p. 55), and items are often included or deleted arbitrarily. Hence, not all items have an equal chance of being included which might lead to the in- or exclusion of conceptually unnecessary or necessary items (Rossiter, 2002). Consequently, measures are often idiosyncratic leading to a limitation of comparability of different studies (Gable et al., 2008). Whereas with formative measures “*indicators could be seen as causing rather than being caused by the latent variable measured by the indicators*” (MacCallum and Browne, 1993, p. 533). Thus, formative constructs are a linear function of respective measures (Jarvis et al., 2003). Consequently, cause indicators are not interchangeable as in a reflective measure, because content validity is affected when indicators are removed in a formative model. A change in one indicator changes the latent variable *ceteris paribus*.

Reflective models account for observed variances in the measurement model and the error is assessed at the item level while a formative model minimizes residuals in the inner model. Hence, residuals are minimized in the structural relationship. Further, the error is assessed at the construct level not being associated with the observed variables and thus, is not random measurement error. Instead the error is a disturbance term of the latent formative construct which represents all causes not accounted for by the indicators and as such has an impact on the latent construct. Researchers suggest setting the error term to zero, but stress that theoretical foundation is needed to argue that the indicators actually capture the whole concept without leaving the possibility for any remaining causes (Diamantopoulos, 2006). These differences need to be considered when a model is conceptualized and estimated. Importantly, in contrast to reflective models identification for formative ones is only achieved if its effect on other constructs are included. For reflective measures reliability, positive correlations between measures and unidimensionality are prerequisites. For formative measures it is important that indicators actually examine different dimensions and at the same time one needs to avoid multicollinearity between the indicators (Bollen, 1989; Bollen and Lennox, 1991; Edwards and

	Author, Model and Method	Constructs Included
1	Barnes and Vidgen (2002): WebQual. Qualitative and quantitative surveys, n=46	Usability, design, information, trust, empathy, quality
2	Davis (1989): TAM, TRA. Experiment, n=107	Ease of use, usefulness, attitude, intention to use
3	Dabholkar and Bagozzi (2002): TAM with extensions. Survey, experimental design, n=392	Performance, fun, self-efficacy, novelty seeking, need for interaction, self-consciousness, perceived waiting time, social anxiety, attitude, ease of use, intention to use
4	Park and Gretzel (2007): Meta analysis of 153 academic papers	Ease of use, responsiveness, fulfillment, security/privacy, personalization, visual appearance, information quality, trust, interactivity
5	Kim and Fesenmaier (2008): Website Persuasiveness. Survey, n=1,416	Informativeness, usability, credibility, inspiration, involvement, reciprocity
6	DeLone and McLean (1992): I/S Success. Conceptual study	System quality, information quality, use, user satisfaction, individual impact, organizational impact
7	Parasuraman et al. (2005): E-S Qual. Survey, n=549	Efficiency, system availability, fulfillment, privacy, responsiveness, compensation, contact, perceived value, loyalty intentions
8	Van der Heijden (2003): TAM. Web based survey, n=828	Perceived attractiveness, perceived enjoyment, ease of use, usefulness, attitude, intention to use, perceived attractiveness
9	Venkatesh et al. (2003): UTAUT. Survey, n=215	Effort expectancy, performance expectancy, facilitating conditions, social norms, intention to use, gender, age, experience, voluntariness of use
10	Wolfinbarger and Gilly (2001): eTailQ. Focus groups, tasks, survey, n=1,013	Quality, fulfillment/reliability, website design, privacy/security, customer service
11	Mathwick et al. (2001): Survey, n=110	Escapism, intrinsic enjoyment, attitude toward the brand and site, navigational challenge, internet search skill, internet usage, decisional control, product involvement

Table 9.1: Website evaluation criteria

Reflective constructs	Formative constructs
Construct is reflected in its indicators	Construct is a composite of indicators
Account for observed variances in the outer model – error is assessed at the item level	Minimize residuals in the structural relationship – error is assessed at the construct level
Identification achieved with three effect indicators	Identification is given only if the construct is embedded into a larger model
Important aspects:	Important aspects:
<ul style="list-style-type: none"> <li>• Internal consistency or reliability</li> <li>• Positive correlation between measures</li> <li>• Unidimensionality</li> </ul>	<ul style="list-style-type: none"> <li>• Indicators examine different dimensions</li> <li>• Multicollinearity is a problem</li> <li>• Removing an indicator affects content validity</li> </ul>
Theoretical relationship between construct and indicators need to be thought about thoroughly.	

**Table 9.2:** *Reflective vs. formative constructs – comparison of characteristics*

Bagozzi, 2000; Fornell and Bookstein, 1982). Table 9.2 summarizes the differences between the two measurement perspectives.

### 9.2.2 Index construction

Researchers face the challenge that guidelines for construct development from classical test theory are not applicable (Churchill Jr., 1979). Therefore, we follow the steps suggested by Diamantopoulos and Winklhofer (2001) for index construction. They propose four critical issues that need to be addressed in order to successfully construct a formative measure. First, the latent variable needs to be defined properly in order to specify its scope which is linked to the indicators comprised.

Second, the indicators must be specified to cover the total scope of the underlying construct. Rossiter (2002) argues that concrete constructs or objects, which are homogeneous or well-known by everybody are sometimes artificially blown up by multiple items in reflective measurement. Even though a single item could account for it and would potentially be more accurate. In the case of a formative construct at least one indicator for each dimension must be formulated. However, at the same time an excessive number of indicators have to be avoided. In order to comprise the whole scope but at the same time using indicators parsimoniously the step of specifying dimensions of the concept as well as item identification are crucial and have to be guided by a thorough literature review. Jarvis et al. (2003) reveal that misspecified models are rather common (nearly one third) in highly ranked journals. These findings are confirmed by other researchers supporting the view that misspecifications result in measurement error (Petter et al., 2007). Above that misspecifications affect structural models and influence theory testing (Edwards and Bagozzi, 2000). Bagozzi (1994, p. 333) stresses that “*an index is more abstract and ambiguous than a latent variable measured with reflective indicators*”.

Similar to multiple regression analysis omitting relevant variables in formative measures leads to estimation problems and a substantially different index. One source for identifying problems is the error term (Diamantopoulos, 2006; MacCallum and Browne, 1993). A high error term calls for revisiting the latents’ conceptual definition.

The third step assesses multicollinearity. Since a formative measure is based on multiple regression analysis the sample size and the strength of intercorrelation between the indicators affect coefficients' stability. Indicators' magnitudes can be interpreted as validity coefficients because of the direct relationship between each indicator and the underlying construct (Bollen, 1989). Consequently, if we find multicollinearity the indicator contains unnecessary, redundant information, indicator validity will be biased, and estimation difficulties may arise (Albers and Hildebrandt, 2006; Bollen and Lennox, 1991). The variance inflation factor (VIF) and tolerance are recommended to test for multicollinearity (Kleinbaum et al., 1988).

The final step concerns external validity. Since there is no way of assessing the appropriateness of indicators included "*the best we can do [...] is to examine how well the index relates to measures of other variables*" (Bagozzi, 1994, p. 333). This is achieved by correlating each indicator to a variable not part of the index but with a feasible theory based relationship (for further details see Spector (1992)). A more common approach is to estimate a Multiple Indicators and Multiple Causes (MIMIC) model (Hauser and Goldberger, 1971; Jöreskog and Goldberger, 1975) by linking the index as an antecedent to constructs defined in theory. A good fit of the MIMIC model indicates suitability of the indicators chosen for the formative construct (Diamantopoulos and Winklhofer, 2001). This approach evaluates nomological validity. Overall fit can be examined by an inspection of stand-alone (e.g. chi-square, RMSEA) and incremental fit indices (e.g. TLI, CFI) following commonly used cut-off criteria (see Hu and Bentler (1995)). Finally, the index should be cross-validated (Cudeck and Browne, 1983).

### 9.3 Website performance: Conceptual measure development

Reflecting literature on website performance we can conclude that indicators cause performance and not the other way around. In other words, indicators are not reflected by performance. Thus, it is more accurate to measure website performance in a formative way rather than reflectively. Therefore, we propose a formative indicator.

In order to properly define a construct Rossiter (2002) suggests clarifying the rater entity, the object, and the attribute. In our case, tourists searching information online are the rater entity, all kinds of websites providing travel information are the object, and finally the performance of a website evaluated is the attribute. The following section further discusses dimensions of the website performance construct which in our case is the correct functioning, information provision, and interaction with a website. After identifying the concept, we now continue to follow the four stages for index construction proposed by Diamantopoulos and Winklhofer (2001).

#### 9.3.1 Scope of the construct

We first discuss the scope the website performance index is intended to capture based on previous literature. As mentioned above meta-analyses by DeLone and McLean (2003, 1992) and Park and Gretzel (2007) provide an overview of concepts of website performance. We will now discuss the ones most consistently mentioned in literature to identify concepts and measurement items for the formative index.

The first dimension of the concept identified is system availability. This is about the technical functionality of a website and its technical performance. Websites not available or not responding quickly are not interesting for web-users (Parasuraman et al., 2005; Zeithaml et al., 2002). Ease of use and usefulness are also among the key items because a useful system allows users to find information without great effort. A website has to be easy to use and more important that has to provide useful information (Collier and Bienstock, 2006; Davis, 1989; Novak et al., 2000). Furthermore, website users only want a specific amount of challenge. Therefore, navigational challenge should not overwhelm the user. The webpage needs to be well structured, easy and intuitive to navigate (De Marsico and Levialdi, 2004; Rossi et al., 1999). In line with literature the attractiveness of a website is of importance. Website design is a key driver of performance perception. This dimension deals with the visual appearance of a site including site characteristic such as color, presentation of text, pictures, videos, and sound (De Marsico and Levialdi, 2004; Norman, 2002; Shneiderman, 2003). According to literature content quality is of utmost importance. Content needs to be easily understandable and is an indicator of a high quality website (Barnes and Vidgen, 2000; Novak et al., 2000). Travelers often access a website for information search. However, more and more people want to be entertained and have fun when searching for information online. Researchers also increasingly investigate enjoyment and show that use of a system is an end in itself (Koufaris and Hampton-Sosa, 2002; Park and Gretzel, 2007; Venkatesh, 2000). Finally, trusting a website was mentioned as a relevant dimension as it leads to increased usage and repeat visitors (Dickinger, 2010; Gefen et al., 2000). The formative construct comprises eight dimensions (Figure 9.1 H1a–g) providing that the whole scope of website performance is captured and at the same time the included aspects are mutually exclusive and necessary. These dimensions are: System availability, ease of use, usefulness, navigational challenge, website design, content quality, trust and enjoyment.

### 9.3.2 Indicator specification

In order to specify indicators construct definitions are used to find indicators that capture distinct dimensions of the formative construct. A qualitative survey confirmed the definition of website performance as well as sub-dimensions of this concept previously identified in literature and already discussed above. Data collection of the qualitative study was performed through in depth interviews (Bruhn et al., 2008). The questions were explorative, open ended questions that resulted in 35 narrative interviews. The respondents provided detailed answers and a multitude of perspectives. First of all, they gave a detailed account of what they understood as website performance, then; they identified dimensions of the concept. Next, the interviewees formulated precise questions for each of the dimensions they identified. All of them were collected and then, all of the items were categorized and structured by the researchers (Strauss and Corbin, 1998). Some of the items were deleted because of redundancy and refined or rephrased. This allowed categorizing items at a different level. In a second round, to obtain feedback on the completeness, phrasing, and appropriateness of the listed items, the respondents were consulted again. They picked the most precise items for each concept and performed some final adaptations or rephrasing. The final items can be found in Table 9.3 and Table 9.4.



### 9.3.3 Indicator collinearity and external validity

After data collection to test the proposed index multicollinearity between indicators needs to be addressed and finally, to test external validity of the index it needs to be embedded into a broader framework. We examine this broader framework by including the impact of website performance on satisfaction with the site as well as on value of the site, which then influences loyalty. These are hypotheses commonly suggested in literature (e.g. Cronin et al. (2000); Parasuraman et al. (2005)). Thus, we propose that website performance (H1a–h) has an impact on satisfaction (H2) and perceived value (H3) which in turn influence loyalty (H4 and H5 respectively). Figure 9.1 depicts the full research model.

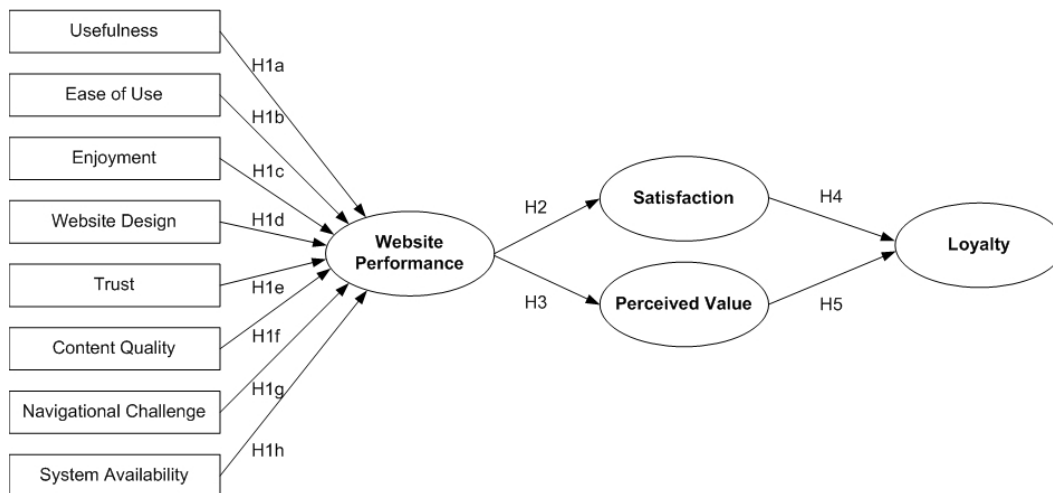


Figure 9.1: Research model to formatively measure website performance

## 9.4 Study design and measurement

In order to develop a sound formative measure for website performance the study at hand not only follows the four stages suggested in literature (i.e. content specification, indicator specification, test for collinearity, external validity) but also cross-validates the model with a fresh data set.

As detailed above we follow the suggestions for index construction by Diamantopoulos and Winklhofer (2001). Eight dimensions are identified in literature capturing the whole scope of the focal construct website performance: System availability, ease of use, usefulness, navigational challenge, website design, content quality, trust, and enjoyment. The indicators for each dimension were identified through a qualitative study. An online questionnaire was used for data collection. The first page of the questionnaire explained the study context and the purpose of the study. It gave details about the duration for completing the questionnaire, background information and invited respondents to participate. First, respondents were asked to read a search task and perform the task following a link to a tourism website. This site contained destination information from travel blogs, media, magazines and tourism organizations. After completing the search task respondents returned to the questionnaire to complete it.

The three latent reflective concepts included to assess external validity (satisfaction, value, loyalty)

were measured by adapting previously developed and tested Likert-type scales. Satisfaction and loyalty were measured by four and two items respectively adapted from Cronin et al. (2000) and Oliver et al. (1997). Value was measured with two items adapted from Cronin et al. (2000). A pre-test among 42 students scrutinized the measurement instrument and provided the clarity and readability of the questionnaire.

Website performance (formative measure)	
H1a: Usefulness	I find the website useful for my search task.
H1b: Ease of Use	I find it easy to get the website to do what I want it to do.
H1c: Enjoyment	I find the website entertaining.
H1d: Website Design	I like the look and feel of the website.
H1e: Trust	I think the website is trustworthy.
H1f: Content Quality	The website communicates relevant information
H1g: Navigational Challenge	It is easy to understand the overall navigation structure of the website.
H1h: System Availability	Pages on this site do not stop loading when I search.

**Table 9.3:** Measurement items used in the research model – formative concept

	Factor loadings study 1	Factor loadings study 2
<b>Value (adapted from Cronin et al. (2000); Oliver et al. (1997))</b>		
The search results are worth the effort.	.911	.840
The value received through the search justifies the effort.	.953	.805
<b>Satisfaction (adapted from Cronin et al. (2000); Oliver et al. (1997))</b>		
This website is what you need when you search for information.	.838	.675
After the search I was satisfied with the results.	.867	.501
I will recommend the website.	.833	.746
I am satisfied with the website.	.892	.753
<b>Loyalty (adapted from Moon and Kim (2001))</b>		
I will use the website on a regular basis in the future.	.867	.870
I will frequently use the website in the future.	.887	.789
I will strongly recommend others to use the website.	.865	.839

**Table 9.4:** Measurement items used in the reflective research model – reflective concepts

The reflective latent concepts are evaluated applying Fornell and Larckers' (1981) approach. This would of course not be feasible for the formative part of the measurement instrument. Average variance extracted (AVE) is at an acceptable range between .72 and .87, construct reliability is between .91 and .93; both exceeding the cut off value of .5 (AVE) and .7 (CR). Discriminant validity is satisfied with squared shared variance not exceeding AVE (see Table 9.5).

For the formative indicator we assess the presence of Follinearity inspecting the variance inflation factor (VIF). VIFs are recommended to remain below 10 which is achieved since all VIFs are < 2 (Kleinbaum et al., 1988). Furthermore, the tolerances were greater than .6 and are well above the recommended minimum value of .3 (Diamantopoulos, 2006).

## Analyses

The estimation of the model is performed using MPlus a second generation SEM tool (Muthén and Muthén, 2007). This tool offers some key advantages. One is that estimators are implemented that do not require normal distribution or metric data. Furthermore, the software allows for specification of formative measures. As can be seen from Figure 1 the authors do not only estimate the formative index but a Multiple Indicators Multiple Causes (MIMIC) model (Jöreskog and Goldberger, 1975). This allows for inclusion of reflective indicators and consequently delivers fit indicators that help assess the overall model fit. Furthermore, to assess the index the individual  $\gamma$ -parameters deliver insights (Diamantopoulos and Winklhofer, 2001).

## 9.5 Results

### Sample profile

After data cleaning the final sample counts 445 fully completed questionnaires. There were somewhat more female (58.4%) than male (41.6%) respondents. The average age of the sample is 28.3 years. Regarding the highest level of education completed, more than half of the sample finished high school (53.9%), 36.6% acquired a university degree, and the rest did compulsory, vocational training or something else. The respondents can be considered experienced regarding Internet usage with 84.3% being online constantly or several times a day.

#### 9.5.1 Estimation of the research model

Incremental fit indices as well as stand-alone fit indices show that the model fits the data well. The comparative fit index (CFI) and the Tucker-Lewis index (TLI) arrive at .957 and .945 respectively. Root Mean Square Error of Approximation better known as RMSEA is at a satisfying level of .058. Details on the fit indicators can be found in Table 9.6. Now the proposed model is examined in more detail. Usefulness, ( $\gamma = .22; p < .001$ ), ease of use ( $\gamma = .19; p < .001$ ), enjoyment ( $\gamma = .10; p < .008$ ), website design ( $\gamma = .16; p < .001$ ), trust ( $\gamma = .07; p < .020$ ), content quality ( $\gamma = .34; p < .001$ ), navigational challenge ( $\gamma = .12; p < .001$ ), and system availability ( $\gamma = .07; p < .02$ ) return significant coefficients in support of H1a, H1b, H1c, H1d, H1e, H1f, H1g and H1h. The  $R^2$  of the index is .77. This confirms the proposed formative index for website performance. Now, investigating the results of the structural part we perform nomological validation. Diamantopoulos and Winklhofer (2001) suggest linking the index to constructs with which they normally would be linked with. We find positive effects of website performance on both, satisfaction ( $\beta = .98; p < 4.001$ ) and perceived value ( $\beta = .85; p < .001$ ). This confirms H2 and H3. In line with H4 satisfaction has a direct positive effect on loyalty ( $\beta = .86; p < .001$ ). However, the effect of value on loyalty is not significant.

Construct	CR	1	2	3
Loyalty	0.91	<b>0.762</b>		
Value	0.93	0.460	<b>0.869</b>	
Satisfaction	0.93	0.621	0.723	<b>0.716</b>

Note: Average variance extracted is reported on the diagonal.

**Table 9.5:** Evaluation of the measurement model

### 9.5.2 Cross-validation

As suggested by Cudeck and Browne (1983) there is a need for cross validating the constructed index with fresh data. This cross validation was performed evaluating a national tourism organization website. Data is collected through an online survey, applying the same questionnaire as in the first study. 316 fully completed questionnaires are usable for the purpose of the study at hand. Concerning gender the sample is nearly equally distributed with 53.5% female and 46.5% male respondents. On average respondents are nearly as old as in the first sample with an average age of 27.7 years. Furthermore, participants are also well educated; 59.8% finished high school and 31.3% obtained a university degree. Finally, participants of the second sample are very knowledgeable regarding the Internet, with more than 81.0% being online constantly/several times a day.

The values for the variance inflation factor and tolerance show good results. Investigating overall model fit we find values for CFI (.921) and TLI (.915) that are above the required cut off value of .9. RMSEA (.066) remains well below the .8 threshold. Furthermore, we investigate the factor loadings and confirm an equally strong measurement model for the reflective measurements. This confirms the evaluation of the measurement instrument from study 1.

Again all the indicators forming the index show significant effects. The  $R^2$  of website performance is high with .72. Usefulness ( $\gamma = .22; p < .001$ ), enjoyment ( $\gamma = .24; p < .001$ ), content quality ( $\gamma = .19; p < .001$ ), and ease of use ( $\gamma = .23; p < .001$ ) show the highest contribution to the index which is consistent with the first study. Also the effects within the structural part of the model exhibit the same patterns. The effect of website performance on satisfaction and value is again positive and highly significant ( $\beta = .98$  and  $\beta = .91$ ). The effect of value on loyalty is not significant while the one of satisfaction on loyalty could be confirmed. It strikes that the  $\beta$ -coefficient for satisfaction on loyalty is above one. To rule out multicollinearity as reason for the inflated coefficient we inspect the variance inflation factor and tolerance (Kline, 2005; Maruyama, 1997). Now we inspect the residuals and also can confirm that no Heywood case causes the inflated estimate (Dillon et al., 1987). Jöreskog (1999) provides an explanation for higher coefficients as they have to be regarded as regression coefficients and therefore can be considered acceptable in our case. Thus, the cross validation of the proposed index as well as the whole model is successful.

## 9.6 Discussion and conclusion

The results of study 1 indicate that important dimensions of website performance are content quality and usefulness followed by ease of use and website design. The effects of trust and system availability are not as strong as for the earlier mentioned items, however, highly significant. This also confirms findings from the qualitative study where respondents noted that for information websites trust is important but not as essential as for transaction sites. Accordingly, in an online booking setting these indicators should exhibit bigger effects. The proposed indicator captures all relevant dimensions and is therefore applicable in multiple settings. The results show that the formative index performs well as all identified dimensions show highly significant  $\gamma$ -values. Furthermore, also the expected effects on behavioral variables such as value and satisfaction, both well established in literature are confirmed. This is in line with website quality/satisfaction/performance literature (Cronin et al., 2000; DeLone and McLean, 2003; Oliver et al., 1997) and demonstrates the quality of the proposed

	Index construction study 1		Cross validation study 2	
<b>Model for website performance</b>	<b>Standardized <math>\gamma</math></b>	<b>p-value</b>	<b>Standardized <math>\gamma</math></b>	<b>p-value</b>
Usefulness	.22	<.001	.22	<.001
Ease of use	.19	<.001	.23	<.001
Enjoyment	.10	<.008	.24	<.001
Website design	.16	<.001	.12	<.009
Trust	.07	<.020	.13	<.001
Content quality	.34	<.001	.19	<.001
Navigational challenge	.12	<.001	.09	<.025
System availability	.07	<.020	.16	<.001
	<b>Standardized <math>\beta</math></b>	<b>p-value</b>	<b>Standardized <math>\beta</math></b>	<b>p-value</b>
H2: Website performance $\rightarrow$ Satisfaction	.98	<.001	.98	<.001
H3: Website performance $\rightarrow$ Value	.85	<.001	.91	<.001
H4: Satisfaction $\rightarrow$ Loyalty	.86	<.001	1.315	<.001
H5: Value $\rightarrow$ Loyalty	n.s.	n.s.	n.s.	n.s.
<b>R Square</b>				
Website performance	.77		.72	
Loyalty	.61		.76	
Value	.74		.83	
Satisfaction	.97		.98	
<b>Fit Indicators</b>				
CFI	.957		.921	
TLI	.945		.915	
RMSEA	.058		.066	

Table 9.6: Results of the model test and the cross validation

formative measurement approach for website performance. The soundness of the formative website performance measure is also confirmed through the cross-validation.

### **Theoretical implications**

The aim of this research was to challenge the common reflective approach of website evaluation through formative measurement instruments. In doing so the authors follow the steps for index construction recommended by Diamantopoulos and Winklhofer (2001). In-depth literature review and a qualitative study lead to the development of a formative index. This index comprises eight dimensions representing the defined scope of the construct. These are: system availability, ease of use, usefulness, navigational challenge, website design, content quality, trust, and enjoyment.

The study shows that there is a need for thorough theoretical foundation for the appropriateness of a measurement paradigm. To assist researchers this paper shows how literature can guide concept definition. Then, the study presents a step by step approach on how to successfully design adequate items for a formative construct (Bruhn et al., 2008). A qualitative study revealed indicators relevant for the dimensions of the construct. Participants of the qualitative study consistently agreed on the importance of the proposed dimensions and a majority choose the same items for measurement. A formative model could include all aspects thereby avoiding further uncontrolled appearance of new labels for website performance concepts. The study at hand shows that the dimensions are significant since all  $\gamma$ -values exhibit significant  $p$ -values. However, some may be stronger in a different setting as mentioned above. However, including all dimensions that are theoretically sound avoids adding and removal of items and therefore we present a robust formative index.

Even though there is abundant choice of measurement items from literature (e.g. Barnes and Vidgen (2000); Moon and Kim (2001)) the qualitatively identified items perform well. This is in line with Petter et al. (2007) stressing that even if measures are used in previous studies researchers need to carefully evaluate if the specific measurement approach is the most appropriate.

In light of the above the present study contributes to website performance conceptualization. As such the study extends existing research in this field suggesting a website performance index.

### **Managerial implications**

The proposed web performance index is a robust, parsimonious and simple measurement instrument. This is an advantage over most reflective measures because people often chose items for a reflective construct arbitrarily (DeVellis, 1991; Rossiter, 2002) decreasing accuracy as well as constraining comparability.

It allows organizations to evaluate their websites and also assess the impact of website performance on value and satisfaction. For companies satisfied users are of importance since satisfaction leads to loyalty and this to repeat visit of the website. This is particularly important for transaction sites or websites dependent on sponsors. However, it has to be highlighted once more, that the usage of the appropriate measurement depending on a specific need is essential. Applying misspecified measures leads to estimation problems affecting inference in hypothesis testing. This can cause wrong management decisions (MacCallum and Browne, 1993). In the worst case funds are spent

on improving aspects of a website not even contributing to website performance due to inaccurate conclusions based on misspecified models.

The index is of value to companies who: i) are interested in evaluating their website and in looking for an easy to use and parsimonious measurement instrument; ii) seek to assess their website performance continuously which is possible with such an efficient index; iii) it supports companies who want to establish a benchmark and compare their website performance with competitors.

### **Limitations and future research**

Despite the insights into formative versus reflective measurement and the successful construction and cross-validation of an index for website performance the study has some limitations that should be dealt with in future research.

The study needs replication across different contexts and using different samples. This conceptual framework needs to be tested with more transaction oriented website which should lead to higher coefficients for system availability and trust since respondents in a transaction setting are more vulnerable to system failure (Dickinger, 2010; Gefen et al., 2000). Furthermore, despite demonstrating face and content validity it is worthwhile to further validate the proposed index in different contexts. This would demonstrate the generalizability of the index across different settings. The model was developed and validated with data from one country. This raises the question whether the same set of items used for the formative index reflect the view of a more general, worldwide audience. Replicating the study across different countries, replicating the entire process, including identification of items, would not only give insights into whether the same dimensions but also if the same items are relevant intentionally.

Finally, we would like to encourage further discussion on which paradigm is more appropriate depending on research questions and theory backgrounds. This would enable more index development and lead to the employment of more parsimonious measurement instruments for market research. An extensively validated and widely adapted website performance model would facilitate further research. The study presented in this article makes a significant step in this direction.

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## Measuring emotional mental models

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The present chapter first defines emotional mental models, which are one part of people's mental models. Compared to cognitive models emotional mental models are hardly neglected in the field of information systems as well as in tourism and e-tourism respectively. The second part of this chapter aims at demonstrating the practical relevance of the concept of emotional mental models and shows one way of empirically capturing it in an online environment. A quasi-experimental design is used. Based on a two-point measuring approach differences between mental models before the visitation of a virtual world and after the actual experience are revealed. In doing so different emotional mental models concerning product and service presentations are examined. Results reveal that there are differences for some basic emotions. However, there is no clear direction if emotional mental models change towards a more positive or a more negative picture.

*Keywords:* Virtual worlds, mental models, emotions, Second Life (SL), tourism.

### 10.1 Definition

Emotional mental models are one part of people's mental models intrinsically *tied to cognitive models*. Mental models stipulate that people have certain expectations/thoughts of how things should look like/work and connect certain emotions with this. Mental models are a *framework* in the brain for *new learning situations*, which are based on experiences/meanings and which are influenced by a persons' personality and the environment. Thereby, *emotions and feelings* are considered emotional mental models while thoughts and believes are accounted for by cognitive models. In learning situations new

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<sup>1</sup>The first part of the chapter is an invited contribution for the Encyclopedia of the Sciences of Learning (author: Brigitte Stangl) while the second part, the empirical study is a contribution to the conference proceedings of ENTER 2009 (authors: Brigitte Stangl and Anke Schneider).

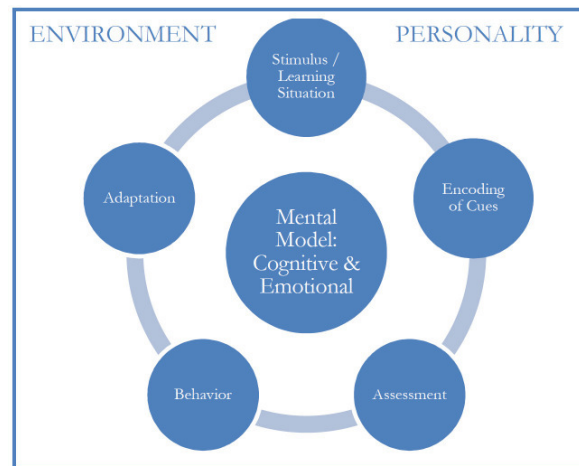
information is compared with existing content (believes and emotions) and structures, then; an adapted cognitive and emotional mental model is generated. Human beings' feelings, reactions, and *behavior* towards stimuli (person/situation/product/brand/service) are guided by emotional mental models.

*Synonyms:* Emotional conceptual model; emotion scheme; personal scheme.

## Theoretical background

Mental models (Norman, 1988) have been examined in various fields such as management, marketing, information systems, consumer behavior, psychology, education, or neuroscience. However, most scientists focus on cognitive models only, neglecting different underlying meanings of mental models such as attitudes, **emotions** and feelings, symbols, actions, goals, values, images, memories, visions, or representations of sensory experience (touch, taste, and smell). Only very little research explicitly takes into account cognitive and emotional mental models jointly. Though, there is empirical evidence that cognitive and emotional mental models are not separable because both, structure and content depend on each other and influence behaviors (Christensen and Olson, 2002). Structure is about how information is organized in memory while content refers to personal meanings comprising thoughts/beliefs and emotions/feelings. LeDoux (1996) points out, that there is only one conscious system which can be filled with trivial facts or with profound emotions. The basics for construction of emotions (nervous system, functionality of mental and physical processes) is determined in our genes but how we actually act, think, and feel depends on aspects learned, experiences gained, and meanings attached. Unconsciously emotions of others are imitated and emotional mental models are built and stored in the long-term memory. Cognitive processes are the repository of signals triggering emotional reactions and enable human beings to act appropriately in specific situations rather than just react. Among various types of **cognition** that activate emotions are appraisal, evaluation, comparison, categorization, belief, anticipation, or memory. Emotions in turn are the basis for motivation and selective perception/attention (Izard, 1993). Mental models cause certain expectations/thoughts of what things should look like, how things should work, and connect certain emotions with this. Consequently, a mental model is a cognitive and an emotional framework in the brain, influenced by person's personality (genes) and the environment including social variables. This framework is assessed and adapted (if required) in learning situations. Learning situations comprise all kind of stimuli (e.g. people, situations, products). The initial mental model is used as a reference point in order to judge novel stimuli. Accordingly, appraising stimuli is a key factor in the adaptation process. The underlying procedure equates to a double-loop learning process. If a certain level of discrepancy between the initial model and the new stimuli is reached underlying assumptions/meanings or more precisely cognitive and emotional models are adapted. Thereby, both cognitive and emotional mental models are activated at the same time. In doing so connections from the emotional to the cognitive system are even stronger than the other way around (LeDoux, 1996). After all, mental models allow people to understand the world, to grasp learning situations as well as to predict outcomes/reactions/consequences without knowing all the details behind. Thus, mental models are cognitive and emotional abstractions that provide just enough information to understand a learning situation and to be able to detect how to behave (Norman, 1988). Thus, mental models affect people's attitudes and behavior by either approaching or avoiding for instance relationship, purchase, usage, or learning (Mehrabian and Russell, 1974). However, because the interpretation of new situations

is based on only small hints and reasoned by analogy with former experiences, misinterpretations and wrong reactions might be the consequence. Nevertheless, positive or negative experiences affect future behavior such as on solutions for problems, satisfaction, word-of-mouth or loyalty (Oliver, 1993, e.g.). This unconsciously constantly ongoing process is summarized in Figure 10.1.



**Figure 10.1:** *Development/transformation-process of cognitive and emotional mental models*

Emotional mental models are highly personal and idiosyncratic. They influence experience, interaction, and behavior. In order to understand human beings' behavior for instance the degree of importance people place on something, how they think, and emotional reactions as well as to decode their level of involvement knowledge about both the underlying cognitive and emotional mental models is essential.

### Important scientific research and open questions

Scientists have been investigating certain aspects of mental models for decades albeit under diverse headings such as cognitive structure, expectation–disconfirmation, attitudes, beliefs, personality, or expertise. There are several attempts of linking the concepts of thoughts, feelings and action (cognition, affect, and behavior), such as congruity theory, attributional theory of motivation, theory of planned behavior, or social cognitive theory. However, research on mental models as such mainly focuses on how information is structured in the memory like for instance hierarchical or as a network. Only very few concentrate on the ideas and concepts behind mental models. There are some attempts such as by Christensen and Olson (2002) who revealed and mapped both sides of a mental model (i.e. cognitive and emotional) for highly motivated mountain bikers. Nonetheless, it is criticized that research does not focus on the meaning of a person/product/brand/service but separates structure and content. Though, conceptually both need to be considered together because if cognition and/or emotion changes, the structure necessarily changes too and vice versa. Reasons for this lack of connecting might be both, complexity and measuring issues. Among the most popular methods used for revealing mental models are qualitative approaches such as laddering technique and means-end chain analysis. Another method using pictures as stimuli referred to as **Zaltman Metaphor-Elicitation Technique (ZMET)** is a worthwhile technique, however, is used only rarely.

## Cross-References

Related entries in the Encyclopedia of the Sciences of Learning; please find the complete list of all contributions at <http://oesys.springer.com/ESL> by going to 'download current List of Contributions as a PDF document'.

- Mental Models
- Cognitive Models of Learning
- Double-loop Learning
- Internal Representation – Mental Representation
- Affective Dimensions of Learning

## Definitions of related issues

**Emotion:** An emotion can be elicited consciously or unconsciously by evaluating a stimulus. Emotion is about *positive and negative feelings*, if it is positive a goal is advanced, if it is negative not. Emotion is a matter of cues for cognition and *readiness to act*. Emotions are experienced as distinctive types of mental states often accompanied by bodily changes/expressions (facial expression, posture, resulting activity/behavior, muscle action).

**Cognition:** The Latin term for cognition is *cognoscere* which means to know, to conceptualize or to recognize, thus; it refers to *information processing*. Cognition is about knowledge and comprises learning, memory, handling of symbols, thinking, and language. If perception leads to representation and memory it clearly is one part of cognition [Izard (1993) Four systems of emotion activation *Psychological Review*, 100(1), p. 73].

**Zaltman Metaphor-Elicitation Technique (ZMET):** A *method* developed by Gerald Zaltman in the nineties allowing for *eliciting metaphors* that reveal aspects of the *underlying mental models*. By further applying the laddering method it is possible to identify often elusive constructs and to determine relationships between constructs; to map the structure of a mental model.

After presenting details regarding what emotional mental models are, the next section attempts to apply the ideas behind emotional mental models and aims at empirically capturing emotional mental models in an online environment.

## 10.2 Do emotional mental models before and after an effective visitation of a virtual world differ?

The aim of the study is to find out the mental model of people concerning the virtual world Second Life. The present study bases the mental model on emotions of people who think of service and product presentations in Second Life. In a first step the emotional mental model of test persons without prior knowledge of Second Life is exhibited. In a second step people effectively visited a hotel's appearance in the virtual world. After that, they were asked again to express their emotions concerning a service and product presentation in such an environment. Then, the gathered terms were allocated to the basic emotions proposed by Izard (1977) by 25 encoders. Results show, that

there are differences between the emotional mental model before and after the visitation of the virtual world. Thus, indicating that expectations are not consistent with the actual experience in Second Life.

### 10.2.1 Introduction

Due to advances in technology, it is possible to combine different activities in one single package, which have been used separately before. Among those are voice communications, entertainment, information, and transaction. Virtual worlds are an ideal medium to offer such activities.

The Search Volume index of Google Trends shows that since 2006 people have increasingly been searching for the keyword 'virtual worlds'. The data is based on the average search traffic for the used term from 2004, January to present (Figure 10.2, accessed on 03.09.2008).



**Figure 10.2:** Search volume index for the keyword 'virtual worlds'

The ever increasing importance of virtual worlds motivates developers to make such online systems attractive and easy to use. These usability constructs, the fun factor as well as emotional perception of a system are important antecedents to build a critical mass of members (Rice, 1990; Markus, 1987). A strong online community provides companies the chance to combine communication with other content. Moreover, data on user's behavior can be gathered and a deeper understanding of customers' needs can be gained (Armstrong, 1995).

This is true for the tourism industry too. However, there are still rather few organizations which have an appearance in a virtual world. In Second Life (SL) for example there are appearances of some tour operators (e.g. gratistours.com, Thomas Cook, TUI) but hotels are very rare. In the first half of 2007 a medium sized hotel established an appearance called 'First Spa Hotel'. This was right at a time where SL was very popular, see Figure 10.3 (Google Trends, accessed on 03.09.2008). The hotel received a lot of media coverage. Nevertheless, the hotels' manager decided to leave SL, i.e. to delete the appearance there - among other reasons, due to an insufficient amount of visitors. The hotels' appearance was not able to attract a critical mass of visitors.

The figures published by Linden lab confirm this lack of a critical mass of residents, as the amount of premium accounts (for residents who are prepared to pay for the usage of SL) decreased for the first time in July 2007 (Second Life, 2007, 'Economic Statistics', accessed on 24.09.2007). Moreover, a closer look at the density of population reveals that it does not increase as much as registrations itself (Schleser, 2007). Based on these facts the present study tries to reveal if the reason for visiting SL just for a short period of time is a mismatch between users' emotional mental models before and after a SL visitation.





**Figure 10.3:** Search volume index for the keyword ‘Second Life’

The remainder of this chapter is divided into the following sections: First an overview of relevant literature is given. Thus, the concept ‘mental model’ is described (detailed explanations are given earlier in this chapter), and insights into relevant emotion theory are given. Then, the methodology used is presented, followed by the description of the samples and the results. Finally, important findings are discussed, limitations of the study are presented, and suggestions for further research are given.

## 10.2.2 Theoretical background

### Mental models

With regard to the demand for usability of online-systems, human factors like cognition and perception play an important role for the development of such systems. The center where all sensations are recorded is the human brain. How these sensations are perceived depends on experiences, prior knowledge, the information processing style, and the general intelligence. These antecedents of perception form the so called mental model (Van Der Veer and Felt, 1988; Norman, 2002).

*“A mental model provides on immediate expectation about what you think is going to happen and the emotional system will evaluate that positively (positive affect or valence) or negatively (negative affect or valence). As a result, you will experience hope or anxiety (hope in the positive case and anxiety for the negative case)”* (Norman in Parush (2004), accessed on 05.10.2008).

The mental model in the mind of the user is a framework for learning in new situations. New incoming information will be compared with already known structures in the brain then a new or adapted mental model is generated. Beside the users’ mental model also the designers’ conceptual model is fundamental to develop a user friendly and successful online-system. Both of these models have to be incorporated in the systems’ image. If the conceptual model is not consistent with the mental model users will link negative emotions with the system and thus, will not use the system again (Norman, 2002).

### Emotions

Emotion theory tries to identify and describe certain emotions by special characteristics. Emotions can be similar in intensity and direction but may differ in subjective experience. Hence, scientist identified different numbers of emotions based on different strategies, like e.g. dimension analysis (Wundt, 1992; Block, 1957; Mees, 1991) and basic emotions (James, 1884; Arnold, 1960; Frijda, 1986). Dimension analysis is heavily criticized due to the impact of the methodological design used for an investigation (Roseman, 2001; Scherer, 2003). Basic emotions are used to derive more specific ones.

Author	Year	Basic emotions investigated
James	1884	Fear, grief, love, rage
McDougall	1926	Anger, disgust, elation, fear, subjection, tender-emotion, wonder
Watson	1930	Fear, love, rage
Arnold	1960	Anger, aversion, courage, dejection, desire, despair, fear, hate, hope, love, sadness
Mowrer	1960	Pain, pleasure
Izard	1971	Anger, contempt, disgust, sadness, fear, guilt, interest, joy, shame, surprise
Plutchik	1980	Acceptance, anger, anticipation, disgust, fear, joy, sadness, surprise
Ekman et al.	1982	Anger, disgust, fear, joy, sadness, surprise
Gray	1982	Anxiety, joy, rage, terror
Panksepp	1982	Expectancy, fear, panic, rage
Tomkins	1984	Anger, contempt, disgust, distress, fear, interest, joy, shame, surprise
Weiner et al.	1984	Happiness, sadness
Frijda	1986	Desire, happiness, interest, sorrow, surprise, wonder
Oatley et al.	1987	Anger, anxiety, disgust, happiness, sadness

**Table 10.1:** Basic emotions investigated in research from 1884 to 1987 (according to Ortony and Turner (1990))

However, as Table 10.1 shows there is no consensus about which are the basic emotions and how many there are. The number of basic emotions analyzed range from two (Mowrer, 1960; Weiner and S.r, 1984) to eleven (Arnold, 1960) emotional concepts.

Several prior studies, such as Brave and Nass (2007); Gnoth et al. (2000), based their research on the classification by Izard (1977) or that by Plutchik (1980).

As already mentioned mental models stipulate, that people have certain expectations of how things should look, how things should work, and then connect certain emotions with this. Therefore, people who never visited SL before have certain expectations based on e.g. media reports. However, these might change after they actually visited the virtual world. A change towards a more negative emotional mental model might be one reason why SL has not reached a critical mass yet. The critical mass is the required minimum number of users needed to sustain a diffusion process and to consider a new technology successful (Rice, 1990; Markus, 1987). This paper tries to contribute to this question by investigating the following aspect:

*Research question: Is there a mismatch between the emotional mental model before and after an effective visitation of Second Life (SL)?*

### 10.2.3 Methodology

Due to the lack of studies which investigate the consistency of emotional mental models of users before and after a visitation of an online environment a quasi-experiment was conducted in the field of the hospitality industry in June 2007. The design included a sentence-completion test and is based on a convenience sample. Demographics, the Internet usage profile, and the gaming profile were surveyed. People without any experience with SL prior to this study (further on called: un-experienced) were invited to do the study in a laboratory at the Vienna University of Economics and Business

Administration. Test persons were asked to name adjectives (one or two words only) by answering the following two questions:

“When I imagine a service presentation in Second Life (e.g. virtual massages) I feel:”

“When I imagine a product presentation in Second Life (e.g. shoes, cars) I feel:”

The differentiation between ‘product presentation’ and ‘service presentation’ was made because gaining even deeper insights was expected. People were asked to answer the two questions mentioned above before and after their visitation of SL.<sup>2</sup> At the hotel’s SL appearance all test persons had the chance to try the tasks offered, i.e. playing hangman, sitting at the bonfire, getting a massage, doing a round trip by chairlift, chatting with other visitors or employees of the spa, jumping into the pool, and dancing. The study participants were asked to do at least five of the eight tasks offered.

As the study was done in the German language two experts discussed a possible translation of the collected words (adjectives). Another two experts independently translated the words. During a further discussion all four experts agreed upon the most suitable translation. The two lists (words expressed before visiting SL and words expressed after visiting SL) were adjusted for double entries, words which did not express any emotion, and other useless words. Then, the basic emotions defined by Izard (1977) have been used and encoders were asked to allocate the list of words to the appropriate basic emotion. They did this online via a card-sorting tool. For the present study the classification by Izard (1977) was used because it has two more basic emotional concepts than the classification by Plutchik (1980) and therefore promised more detailed results.

Then, the authors aggregated the ten emotional concepts by Izard (1977) into two categories, i.e. positive (joy, interest, and surprise) and negative (anger, contempt, disgust, distress, fear, and shame). Thus, it is possible to find out if the allocated emotional direction of the terms is unambiguous. To be unambiguous at least two third of all allocations had to be either positive or negative otherwise the direction is seen as ambiguous. To find out if a term was allocated directly to one basic emotion a hard margin was defined which took into account how many basic emotional concepts have been served by the test persons. If e.g. six concepts were served, a uniform distribution between these six concepts would be 16.67%. Then, the difference from the second most served concept and the concept with the most allocations had to be equal/more than one third of the uniform distribution (i.e. 5.56 were added to the second most served concept). To confirm the allocation of the words to the basic emotional concepts (using the determined hard margin) a principle component analysis (PCA) with Varimax rotation was calculated using SPSS. Finally, the emotional mental model before the visitation of SL and the emotional mental model after the effective visit in SL were compared by using the non-parametric test McNemar. To do this calculation the emotional concept which was determined by using the ‘hard margin procedure’ was used for the purpose of the present paper because the authors try the least sophisticated approach possible and the one which is most intuitive to understand. Finally, results for service and product presentations are compared.

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<sup>2</sup>At the same time the study attempts to reveal users’ attitude towards SL; results can be accessed at: Stangl, Brigitte, Weismayer, Christian. 2008. Websites and Virtual Realities: a Useful Marketing Tool Combination? An Exploratory Investigation. In *Information and Communication Technologies in Tourism 2008*, Editors: O’Connor, Peter, Höpken, Wolfram and Gretzel, Ulrike, 141–151. Innsbruck: Springer.

## 10.2.4 Results

### Description of the samples

In the SL-study a convenience sample of 112 people passed through the whole procedure of the experiment. For the purpose of this study 47 people delivered appropriated data. The sample consists of 51.1% female and 48.9% male persons. 83.0% are less than 30 years old. 25.5% graduated from university and 70.2% of the test persons have the general qualification for university entrance. Concerning Internet usage per week the sample of un-experienced SL-users on average is 17.0 hours online, play 0.3 hours online games, and visit 1.3 hours all kinds of VRs (other than SL, e.g. Papermint, World of Warcraft). Nearly all persons search for information online before doing a hotel reservation. 78.7% always search for information online prior a trip, 17.0 sometimes, and the rest of them use other sources.

25 encoders were asked to allocate the emotional words gathered during the SL-study. 12 men and 13 female participated. 4 persons are between 20 and 25 years old, 16 are between 26 and 30 and 6 are older than 31 years old.

### Terms and emotional concepts

Table 10.2 presents all the terms, which have been gathered during the SL-study and which have been allocated to the basic emotional concepts by Izard (1977). Moreover, the table gives an overview if the direction (positive (2), negative basic emotion (3), and no clear direction (1)) of the terms allocated is unambiguous. As Table 10.2 shows, only eight basic emotional concepts have been served, i.e. no terms were un-ambiguously allocated to 'disgust (Ekel)' and 'shame (Scham)'. Moreover, only the term neutral (neutral) was allocated to the basic emotion 'guilt (Schuld)', whereby the direction of this term was ambiguous. The direction of the terms analyzed is rather clear. Only some words like: unfamiliar (ungewohnt), ambivalent (ambivalent), curious (eigenartig) had an ambiguous direction (3). Most of the ambiguous terms, i.e. weird (komisch), odd (merkwürdig), hard to imagine (schwer vorstellbar), and weird (seltsam/schräg) are allocated to the basic emotional concept surprise (Überraschung).

As Table 10.2 shows the principle component analysis more or less confirms the hard margin used by the authors. Factor loadings of the rotated results of all allocated terms were between 0.95 and 0.80.

But there have also been some terms which belong to several basic emotions (based on the margin the authors stipulated). Table 10.3 gives an overview of these terms, the basic emotions they are allocated to, and the direction of the basic emotion (positive (2), negative (3), and no clear direction (1)).

### Comparison of the emotional mental models

The results presented in Table 10.4 show that there are significant differences between emotional mental models before and after the first visitation of SL.

For the presentation of services Table 10.4 shows that 90 emotional words of the SL-study participants neither expressed feeling 'anger' before the visitation of SL nor after an effective visitation. 7 words of participants express anger before and after the visitation of SL. Moreover, 2 words indicate

<b>anger</b>	intrusiv (aufdringlich)	3	<b>contempt</b>	absurd (absurd)*	3
	cumbersome (mühsam)	3		ordinary (gewöhnlich)	3
	annoying (nervig)	3		useless (nutzlos)*	3
	meaningless (sinnlos)	3		superficial (oberflächlich)	3
	superfluous überflüssig)	3		exaggerated (übertrieben)*	3
	unsatisfactory (unbefriedigend)	3		phoney (unecht)	3
	useless (unbrauchbar)	3	<b>fear</b>	strange (befremdlich)	3
	unqualified (ungeeignet)	3		dispensable (entbehrlich)	3
	unnecessary (unnötig)	3		unfamiliar (ungewohnt)*	1
	inappropriate (unpassend)*	3	<b>guilt</b>	guilt neutral (neutral)*	1
	unreal (unrealistisch/realitäts- fremd/unwirklich)	3		joy pleasant (angenehm/ wohltuend)	2
	pointless (unsinnig)	3	<b>joy</b>	cool (cool)	2
	insufficient (unzureichend)	3		relaxing (entspannend)	2
	ambiguous (widersprüchlich)*	3		erotic (erotisch)	2
<b>interest</b>	ambivalent (ambivalent)*	1		good (gut)	2
	animating (animierend)	2		helpful (hilfreich)	2
	illustrative (anschaulich)	2		funny (lustig)	2
	calling attention (aufmerksam machend)	2		nice (nett)	2
	suitable (brauchbar)	2		okay (okay)	2
	curious (eigenartig)*	1		adequate (passend)*	2
	informative (informativ)	2		handy (praktisch)	2
	innovative (innovativ)	2		beautiful (schön)	2
	interactive (interaktiv)	2		fun (spass)	2
	interesting (interessant)	2		super (super)	2
	arousing interest (Interesse weckend)	2		entertaining (unterhaltend)	2
	arousing curiosity (Neugierde erwecken)	2		witty (witzig)	2
	useful (nützlich)	2	<b>sadness</b>	boring (fad)*	3
	realistic (realistisch)	2		boring (langweilig)	3
	generating desire (ruft Verlangen hervor)	2		nothing new (nichts Neues)*	3
<b>surprise</b>	unusual (ungewöhnlich)*	2	<b>weird</b>	weird (seltsam/schräg)	1
	weird (komisch)*	1		surreal (surreal)	2
	odd (merkwürdig)*	1		crazy (verrückt)	2
	hard to imagine (schwer vorstellbar)*	1			

Note: The figures indicate if the direction of the word is negative (3), positive (2) or has no clear direction (1).

\* Term is not unambiguously allocated to a concept by the principle component analyses (PCA).

**Table 10.2:** Terms gathered during the SL-study, allocated basic emotion, and allocated emotional direction of the terms

Term	Concepts	
thrilling (aufregend)	interest/joy/surprise	2
irrelevant (irrelevant)	contempt/interest	3
kitschy (kitsch)	contempt/disgust/surprise	1
artificial (künstlich)**	contempt/disgust	3
new (neu)	interest/surprise	2
not compelling (nicht aussagekräftig)	anger/contempt	3
not exciting (nicht spannend)	anger/contempt/interest/sadness	3
unconvincing (nicht überzeugend)	anger/contempt	3
clumsy (schwerfällig)	sadness/contempt	3
meaningful (sinnvoll)	interest/joy	2
exciting (spannend)	interest/surprise	2
uninteresting (uninteressant)	interest/sadness	3

Note: The figures next to each word indicate if the direction of the word is negative (3), positive (2) or has no clear direction (1).

\*\* Term is allocated to the basic emotion "contempt" by the principle component analyses.

**Table 10.3:** *Terms not clearly allocated to one of the basic emotional concepts and their emotional directions*

that participants perceived anger before their experience with SL but not anymore afterwards. Finally, 18 emotional words show that participants ‘got angry’ due to their visitation in SL. Hence, more people felt ‘anger’ after their visitation of SL which indicates an emotional shift in a negative direction (↓).

The basic emotional concepts of ‘anger’ and ‘joy’ feature significant differences for both the presentation of products and services (significant values are presented in bold). After the visit of SL more people indicate an adjective which was allocated to the basic emotion ‘anger’, i.e. the emotional shift towards a more negative feeling (↓). At the same time there is a significant difference for ‘joy’, whereby the emotional shift is towards a more positive feeling (↑). For ‘interest’ there is a significant difference towards a more positive feeling (↑) for products only. For all the other emotional concepts there are no significant differences.

## 10.2.5 Discussion and conclusion

### Theoretical implications

The aim of the study was to contribute to the question if SL does not reach a critical mass due to a negative change of the user’s mental model after an effective visitation of the virtual world. Precisely, the study analyzed one aspect, i.e. if there is a mismatch between the emotional mental model before and after an effective visitation of SL. Therefore, a two step approach was applied. First, a convenience sample was asked to indicate their emotional feeling (by stating one or two adjective/s) before and after a visitation of SL. Second, 25 encoders allocated the gathered terms to the basic emotional concepts by Izard (1977). Then, for a clear allocation of the terms to one basic emotional concept a ‘hard margin procedure’ was introduced by the authors. This procedure was more or less confirmed by the principal component analyses (PCA), which was calculated afterwards. There are only a few differences between the allocation applying the ‘hard margin’ or the PCA: First, if the authors would not have set the margin ‘equal/more’ but ‘more’ the following three terms would have been allocated to at least two emotional concepts: ‘boring (fad)’, ‘hard to imagine (schwer vorstellbar)’, and ‘unfamiliar (ungewohnt)’. This would be in conformity with the PCA calculations

Basic emotion			Services		Product		Emotional shift*		McNemar test	
			after SL		after SL		S**	P**	S**	P**
			0	1	0	1				
anger (Ärger/Zorn)	before	0	90	18	101	12	↓	↓	<b>0.001</b>	<b>0.003</b>
		1	2	7	1	3				
contempt (Verachtung)	before	0	115	0	111	4	↑	↓	0.500	1.000
		1	2	0	1	0				
disgust (Ekel)	before	0	0	0	116	1	↔	↓	–	1.000
		1	0	0	0	0				
fear (Furcht)	before	0	114	2	0	0	↓	–	1.000	–
		1	1	0	0	0				
guilt (Schuld)	before	0	116	1	116	0	↓	↔	1.000	1.000
		1	0	0	0	1				
interest (Interesse)	before	0	87	18	72	25	↑	↑	0.078	<b>0.001</b>
		1	8	4	5	15				
joy (Freude)	before	0	85	24	85	24	↑	↑	<b>0.001</b>	<b>0.001</b>
		1	5	3	4	4				
sadness (Kummer)	before	0	111	5	115	1	↓	↔	<b>0.063</b>	1.000
		1	0	1	1	0				
shame (Scham)	before	0	0	0	0	0	–	–	–	–
		1	0	0	0	0				
surprise (Überraschung)	before	0	103	4	115	2	↓	↑	0.754	0.157
		1	6	1	0	0				
I do not add any emotion with this term	before	0	99	12	105	10	–	–	<b>0.035</b>	<b>0.039</b>
		1	3	3	2	0				

\* ↑ indicates that the emotional mental model is more positive after the SL visit

↓ indicates that the emotional mental model is more negative after the SL visit

↔ indicates that the emotional mental model did not change

\*\* S = Services, P = Product (physical)

Note:

1. Columns four and six (encoded by 'after' and '0') show the frequencies of how often a specific basic emotion was felt after an effective visitation of SL.
2. Columns five and seven (encoded by 'after' and '1') show the frequencies of how often a specific basic emotion was felt after an effective visitation of SL.
3. Rows encoded by 'before' and '0' show the frequencies of how often a specific basic emotion was not felt before an effective visitation of SL.
4. Rows encoded by 'before' and '1' show the frequencies of how often a specific basic emotion was felt before an effective visitation of SL.

**Table 10.4:** Comparison of the emotional mental models before and after visiting the online environment

which did not allocate these terms. Second, it is unclear, why PCA allocates ‘artificial (künstlich)’ to the emotional concept ‘contempt (Verachtung)’ because the concepts ‘contempt (Verachtung)’ and ‘disgust (Ekel)’ were served by six encoders each. Interestingly there is no general pattern for the other terms which were allocated in a different way by the PCA, i.e. terms with unambiguous directions as well as terms with ambiguous directions were not unambiguously allocated by the PCA.

Generally, results revealed that the direction of the terms (positive, negative or, no clear direction) was rather clear, however, the most ambiguous terms were allocated to the emotional concept ‘surprise (Überraschung)’. Maybe the reason for this is that the basic emotion ‘surprise (Überraschung)’ itself is already ambiguous, as some people might see surprises to be positive while other people do not like surprises.

Concerning the research question if there is a difference between the mental model of inexperienced users before and after their visitation in SL the results revealed a significant negative and a significant positive emotional shift. The negative shift appeared for the basic emotion ‘anger (Ärger, Zorn)’ for both, service and product presentations. A significant positive emotional shift was revealed for the basic emotional concepts ‘joy (Freude)’ and ‘interest (Interesse)’. However, for ‘interest (Interesse)’ it is significant for product presentations only. Hence, there is a difference between the mental model of inexperienced users before and after their visitation in SL.

Regarding capturing emotional mental models it is shown that even a very intuitive and straight forward approach as the one which is used for the study at hand gives valuable insights. Compared to other methods such as for instance the Zaltman Metaphor–Elicitation Technique (ZMET) results might be less comprehensive, but comparing the efforts needed to get insights into shifts of emotional mental models of one's target group the straight forward approach used here is a worthwhile alternative.

### **Managerial implications**

The revealed emotional shift is somehow inconclusive, because there is an emotional shift in a positive (joy, interest) and a negative direction (anger). Nevertheless, the significant emotional differences point out the importance of emotional aspects of usability for appearances in virtual worlds. Thus, developers should take into account these aspects too. A system which is able to change the emotional mental model of users in a positive direction, might have a competitive advantage in reaching a critical mass of users and in establishing a strong online community.

Moreover, the uncovered shifts might be a hint that the emotional mental model of users is not consistent with the conceptual model of the designers of SL. Hence, Linden Lab (the provider of SL) may lose residents due to the fact that they do not fulfill expectations of certain visitors. Therefore, providers of virtual worlds need to precisely profile their target user groups and find out information about their mental model. Such information will help to offer a system where the designers’ conceptual model is in accordance with the users’ mental model.

Finally, the study revealed that suppliers in a virtual world have to be aware of a different perception/cognition of product and service presentations. Accordingly, appearances have to be designed differently depending on the suppliers’ aim, i.e. if s/he wants to offer/sell services or products in a



virtual world.

### **Limitations of the study and implications for further research**

As for most of the existing studies, this project also suffers from some limitations. First, the sample size of the SL-study is only very small and based on a convenience sample. Moreover, the study was conducted in the environment of only one possible online environment at the appearance of only one virtual hotel. Therefore, a generalization of the results is not possible. Second, some encoders who allocated the adjectives to the basic emotions by Izard (1977) communicated that they would have appreciated other concepts, e.g. more positive emotional concepts. Izard (1977) provides three basic emotions namely joy, interest, and surprise, whereby surprise might be seen as negative by some persons. Arnold (1960) suggests four positive basic emotions explicitly courage, desire, hope, and love. Therefore, another study should be conducted where test persons allocate the terms to the basic emotions by Arnold (1960) or to the basic emotions of other emotion theorists (Plutchik, 1980; Frijda, 1986). Moreover, study participants should be asked to determine whether they perceive a certain emotional concept to be positive or negative (e.g. surprise). Third, as the analysis of this paper was done with very simple methods and a 'hard margin' stipulated by the authors, further analysis is needed using more sophisticated methods and results need to be compared. Further, the application of several methods would allow uncovering a set of terms which are allocated unambiguously by all methods applied. Fourth, future research should find factors responsible for an emotional shift of the users' mental model to be able to give recommendations concerning the requirements to achieve a positive emotional shift. Ultimately, further research is needed to find out if the users' mental model is consistent with the designers' conceptual model and if it changes over time; hence, a longitudinal study should be considered.

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## **Part V**

# **Discussion: Reflecting study results**



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## Discussion and conclusion

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The last chapter of this thesis provides conclusions, which can be drawn from the nine studies conducted. Therefore, to begin with, a synopsis of the research objective is presented. Then, theoretical, methodological, and managerial implications are discussed followed by caveats regarding the whole project. The final section provides perspectives for future research.

### 11.1 Synopsis: Research objectives

IS literature calls for websites providing a site architecture that is as close as possible to the mental model of the user (Norman, 2002). To assure that users' will be satisfied, website designers need to be aware that users' interpret elements offered on a website based on their physiological and psychological factors. Therefore, all website elements need to communicate the meanings they intend to (Mandel, 2002). Creating a compelling online experience for diverse groups of e-customers is a challenge and of utmost importance for the website success. However, in the field of tourism there is not much literature discriminating between requirements based on motivational or cognitive aspects of certain user-groups (e.g. Nysveen et al. (2005)) the central research question this dissertation attempted to contribute was:

*Are there any differences between a priori defined user-groups  
regarding their satisfaction with web 2.0 websites?*

Further, the dissertation aimed at not only taking into account the demand side but also if the supply side is aware of the increasing importance of web 2.0 contents and its potentials for information presentation. Basically, UGC-platforms enable enterprises to actively listen to their target groups, to gather unbiased feedback regarding the quality of products and services offered, and to exhibit

customers' wishes and needs (Dwivedi et al., 2007; Hennig-Thurau et al., 2004; Pitta and Fowler, 2005). Thus, the Internet allows for creative information presentation and opens new possibilities for market research (Kozinets, 2002). Therefore, the objective was to contribute to the following research question:

*Do hotels and/or museums tap possibilities appearing in  
connection with the Internet to the full potential?*

To bring the project into a sound framework three further aspects have been tackled in this dissertation. First, due to the fact that there is no existing typology for travel-blogs a qualitative approach was used aimed at filling this gap. Second, an alternative, more parsimonious measurement approach for website performance is proposed. Finally, the part 'Measurement issues' also includes a chapter on emotional mental models, a topic which seems to be neglected in IS literature as well as in the field of tourism.

## 11.2 Theoretical implications

Theoretical implications are discussed for all four parts of the dissertation. Starting with the study on categorizing travel blogs, discussion of the demand and the supply side follow. Finally, theoretical implications for measurement issues are elaborated.

### 11.2.1 Defining and categorizing blogs

According to previous literature (Herring et al., 2005; Blood, 2002; Krishnamurthy, 2002; Reichmayr, 2005; Halavais, 2002; Szwillus and Ziegler, 2003) there are the following blog categories: k-log, personal journal, filter/mixed filter/subject specific filter, mixed blog, notebooks, support group, and community blog. However, results of Study 1 show that there is a need for adapting general classification schemes to a certain topic (here: travel blogs). Based on the characteristics of existing blog categories travel blog sites are analyzed in order to adapt the systematic description of characteristics of general blog genres for the context of traveling.

In tourism the category k-log is not a category as such but it is an umbrella term suitable for all travel blogs, because travel blogs can be accessed for free and all bloggers are seen as experts (BootsnAll-Travel, 2008; Burgess et al., 2009; Mack et al., 2008). Other categories proposed for generally categorizing blogs, i.e. without considering particularities of a certain topic need to be adapted as well. Either characteristics need to be relaxed or more specific categories must be introduced. The category 'personal journal' requires less stringent characteristics. Previously called 'filters' are now called 'mixed filters' to take into account that there are hardly any filters in its purest form. 'Mixed filters' not only focus on links; are intended to show the user around the web; include short comments of bloggers but additionally allow indicating some personal aspects about the authors. In a travel context the category 'mixed blogs' contains three more homogeneous groups of travel blogs labeled 'news', 'guide', and 'rating'. The first category is mainly published by journalists and the common user only can post short comments. The second category called 'guides' facilitates travel planning by providing tips, tricks, and personal experiences. The third called 'ratings' provides users with

scales which allow evaluating accommodations or other travel related products/services. Thus, users get information in the form of ratings. The category 'community' (Krishnamurthy, 2002) comprises all the other categories and focuses on networking aspects. The final taxonomy encompasses six categories and one category 'others' containing blogs not fitting into any of the six categories.

Regarding technical features provided on travel blog sites there are significant differences between the six categories. Personal journals and news do not actually provide booking facilities. Bookmarking is very common in communities and mixed filter. Forums can be found on communities but also on rating sites, while picture galleries are provided by communities and personal journals. There are also differences concerning the availability of features for highlighting visited destinations by putting in pins and a function which allows users to rate restaurants. Communities not only provide most applications concerning navigation, services, multimedia, highlighting visited destinations, and rating, but also offer the most special features including applications for mobile blogging and games. The proposed travel blog classification, in conjunction with elaborated characteristics, assists researchers in two ways: First, it facilitates determining whether already published research based on specific travel blog sites is comparable or not. Second, it supports researchers in selecting certain type/s of travel blogs for future surveys.

### 11.2.2 Demand side: Insights into travelers' design needs

The second part of this project focused on the demand side investigated if there are any differences between a priori defined user-groups regarding their satisfaction with web 2.0 websites. All four studies conducted show that there are significant differences between user groups. Two studies (Study 2 and Study 5) directly provide empirical support for diverse requirements regarding preferred website features offered. Further, two studies (Study 3 and Study 4) shed light on differences concerning satisfaction and consequently on users' intention to revisit a website (loyalty). Differences are revealed based on both MOTIVATION and COGNITIVE ASPECTS (see Figure 1.1). As an example of motivational aspects search behavior (goal-directed vs. experiential) is examined. Cognitive aspects are investigated by analyzing learning styles or, more precisely, preferred communication modes.

Results of Study 2 indicated that certain motivations for reading a blog positively influence the importance of particular groups of website features. The need for risk reduction influences the importance of the quantity of information offered on a website. The motivational factor time saving and use of trip preparation tools influences the importance of convenient online tools provided on a website. People who search to satisfy their need for 'Supplementary Information' attach high importance to websites features that allow connecting with locals and travel buddies. Moreover, they appreciate website features that allow creating their own map or subscribing to a newsletter. Subjects who search for authentic information require information in different formats. Three of four important website feature-factors are influenced by the motivational factor 'Fun & Social Contact'. People searching for information in order to satisfy their need for having fun, and who like to contact other users require features which cover the factors 'Quantity of Information', 'Social Contact & Additional Information', and 'Convenient Online Tools'.

However, results must be put into perspective because there are differences between various user groups. Here, differences between adventure- and relaxation-seekers are analyzed. Adventure-seekers require convenient online tools due to their need to save time and to use trip preparation tools. However, there are no significant results for this aspect for relaxation-seekers. Instead, relaxation-



seekers require convenient online tools to meet their need for 'Fun & Social Contact'. Whereas regarding 'Fun & Social Contact' adventure-seekers require a substantial amount of reviews, users, and ratings. 'Fun & Social Contact' impacts on the importance of the amount of information offered, features facilitating contact with travel buddies and locals, and tools which assist users' in planning their trip. Motivational factors 'Authentic Information' and 'Fun & Social Contact' influence the importance of 'Information in all Formats' and 'Social Contact & Additional Information'. Regarding these issues there is no significant difference between relaxation- and adventure-seekers.

Study 3 did not focus on the level of sensation seeking but on how people search for information. In the overall setting content quality is the main driver of e-value. The multiple group analysis shows a different picture. Enjoyment became significant for experiential search while ease of use was not significant anymore. This is in line with the argument that depending on the search task intrinsic motivators such as enjoyment become effective. This confirms that the experiential process outranks the final result (Hoffman and Novak, 1996; Wolfinbarger and Gilly, 2001). If fun is the central motivation for searching for information online, ease of use becomes obsolete. On the contrary, in the goal-directed setting enjoyment does not reveal an impact but ease of use and usefulness have a strong effect. It shows that in a goal-directed setting users are committed to the outcome of the search task (Wolfinbarger and Gilly, 2001) while fun is not important. Results are in line with Childers et al. (2001) stipulating that ease of use and usefulness are highly important for people searching for precise factual information.

After investigating users' information search behavior (third pillar MOTIVATION of antecedents in Figure 1.1) Study 4 contributes insights about COGNITIVE ASPECTS (fourth pillar of antecedents in Figure 1.1).

The research deals with one aspect of learning styles viz. with the moderating effect of communication modes on the relationship between antecedents and satisfaction. The satisfaction of people who prefer text based communication modes (i.e. verbalizer) is motivated by the content followed by the usefulness of a website. While for people favoring visual modes (i.e. visualizer) satisfaction is mainly motivated by the design of a website. The examination of the effect of satisfaction on loyalty shows that certain concepts have the same effect for all individuals. An explanation might be that if people are satisfied they tend to revisit a website regardless of their preferred mode of communication.

The first three studies investigated matters (impact of motives for reading blog entries on importance of website features; impacts on e-value, satisfaction, and loyalty) regarding a priori defined user groups: adventure- vs. relaxation-seekers, goal-oriented vs. experiential searchers, and verbalizer vs. visualizer (examining pillars three and four in Figure 1.1; MOTIVATION, MOTIVATION, and COGNITIVE ASPECTS respectively).

The final study (Study 5) aimed at measuring the influence of hotel guest reviews on customer hotel preferences in the context of booking hotels online and testing for differences between a posteriori segments. It turns out that differences between part worth utilities of consumer reviews are highest for the hotel in general and for hotel rooms. Travelers using hotel reviews find it most useful if they have information on how their fellows evaluate the hotel's environment. Contrary to this, consumers in general do not care much if many or only a few people have commented on a hotel before, or, which

picture of the hotel is shown. Comparing respondents' willingness to pay with their reference price in general, we found significant differences between the two prices except for the situation where a hotel performed poorly in all review categories. This is a noteworthy finding. Subjects do not discriminate between their willingness to pay and their reference price when the hotel has bad evaluations in general. This means that as long as at least one review category is good, people are willing to pay a higher price for a room than a price they perceive to be fair and adequate. This result corresponds to previous empirical studies which show that positive reviews have a positive influence on the guests' attitude towards a hotel (Vermeulen and Seegers, 2009).

A closer look at the disaggregate results (i.e. considering individual importance values for each category) reveals that taking only the aggregated importance values into account is rather myopic. A cluster analysis resulted in seven different segments of people who evaluate the usefulness of review categories differently. Less than one fifth of the subjects do not discriminate between the categories assessed. All other six segments attach great importance to at least one or two review categories. People focusing on reviews of a hotel's environment have the biggest share among all segments followed by the group of subjects who attach importance to the hotel's room or to the service offered. Only a very small group of subjects judges reviews of the hotel in general as most important for their preference building. This means that importance values for review categories differ among groups of users.

All four studies investigated issues which are hardly tackled in the field of tourism but which yield valuable insights. Results of the user-based studies can directly be used for guiding website design or improving a system (Abels et al., 1998).

### 11.2.3 Supply side: Seizing opportunities of the Internet

The two studies of the supply side intended to reveal if hotels and museums fully tap the opportunities of the Internet.

The first study (Study 6) investigated if hotels in German-speaking countries in Europe monitor UGC and if hotels take advantage of social media as a marketing tool. Results show that the hospitality industry is aware of the importance of online reputation. Although it is time consuming, top management does not delegate the task of monitoring online reputation or gathering feedback. Managers manually enter keywords into search engines and search for UGC about the respective hotel. The study shows that awareness of online reputation correlates with the hotel's category as well as bed capacity. Different platforms such as HRS, Booking.com, HolidayCheck, or Tripadvisor are monitored frequently. Dellarocas (2003) suggests that managers should continually monitor social media in order to obtain relevant information about their business. However, still more than one fifth of hotels do not monitor any platforms. Further, it is shown that there are differences between the quantity of received bookings through booking platforms and the frequency of monitoring. Regarding social media for marketing purposes, less than half of the hotels take advantage of this marketing tool. Moreover, the majority of hotel managers have a rather positive attitude towards negative online reviews. Negative UGC is seen as a chance for further service improvement or finding out more about needs and wishes of customers. Regarding the actions which are considered in response of negative UGC Schmallegger and Carson (2008) argue that correcting unfavorable opinions directly on the platform would be less acceptable. However, in this study the majority of hotels would get in contact with the author or comment on negative reviews directly on the platform. Others just ignore it

or consider initiating legal actions. Actions to be considered after negative reviews correlate with the frequency of monitoring and the perceived importance of online reputation. Perceived importance of being reviewed by customers correlates with the attitude towards negative reviews.

After knowing more about the perceived importance and the attitude of hotel managers towards UGC as well as the adoption of social media for marketing purposes the following study analyzes exploitation of online information presentation opportunities.

Study 7 investigated the usage of 3D applications presented on tourism-related websites of different European cities. In order to compare tier one with tier two, the content of websites of hotels, as well as of museums was analyzed. The results showed that the use of 3D applications is positively related to the number of overnight stays. More specifically, major city tourism spots are more dedicated towards innovative technology compared to destinations where tourism only plays a minor role. Thinking of marketing budgets this, of course, is no surprise.

Further, results showed that the number of hotels which use 3D applications on their websites is slightly higher compared to museums. It appears that hotels have an interest in communicating their atmosphere and facilities to prospects. By applying 3D presentations, organizations seize the chance of addressing users' diverse learning styles (Holtze, 2000), satisfy fun and enjoyment needs of users (Hooper-Greenhill, 2004; Moscardo, 1996), and improve users' experience (Mitsche et al., 2008).

The technology used to program 3D applications is quite sophisticated. Programming languages used are Java, Flash and Quicktime and approximately one third of all analyzed websites provide a mix of at least a dozen different 3D applications. Concerning navigation, existing 3D applications hardly provide users with descriptions deteriorating the efficiency of learning and exploring as well as hindering acceptance (Luca Chittaro, 2004).

#### **11.2.4 Measurement: Website performance and emotional mental models**

The last issues tackled are to propose an alternative method of measurement for website performance and to measure a somewhat neglected aspect namely emotional mental models.

Study 8 aimed at challenging the common reflective approach of website evaluation through formative measurement instruments. In doing so the authors follow the steps for index construction recommended by Diamantopoulos and Winklhofer (2001). In-depth literature review and a qualitative study lead to the development of a formative index comprising eight dimensions. The dimensions representing the defined scope of the construct are: system availability, ease of use, usefulness, navigational challenge, website design, content quality, trust, and enjoyment.

As suggested in previous research (Diamantopoulos and Winklhofer, 2001; Rossiter, 2002) the study shows that there is a need for thorough theoretical foundation for the appropriateness of a measurement paradigm. The study presents a step-by-step approach to successfully design adequate items for a formative construct (Bruhn et al., 2008). A qualitative study revealed indicators relevant for the dimensions of the construct. Participants of the qualitative study consistently agreed on the importance of the proposed dimensions and a majority choose the same items for measurement. Even though there is abundant choice of measurement items from literature (e.g. Barnes and Vidgen (2000); Moon and Kim (2001)) the qualitatively identified items perform well. Dimensions included

are significant since all  $\gamma$ -values exhibit significant  $p$ -values; thus, results show that the formative index satisfies requirements. Important dimensions of website performance are content quality and usefulness followed by ease of use and website design. The effects of trust and system availability are not as strong as for the earlier mentioned items, however, highly significant. This also confirms findings from the qualitative study where respondents noted that for information websites trust is important but not as essential as for transaction sites. Accordingly, in an online booking setting these indicators should exhibit bigger effects. The proposed indicator captures all relevant dimensions and is therefore applicable in multiple settings.

Furthermore, the expected effects on behavioral variables such as value and satisfaction, both well established in literature, are also confirmed. This is in line with website quality/satisfaction/performance literature (Cronin et al., 2000; DeLone and McLean, 2003; Oliver et al., 1997) and demonstrates the quality of the proposed formative measurement approach for website performance. The soundness of the formative website performance measure is also confirmed through cross-validation.

The study demonstrates that even if measures are used in previous studies researchers need to carefully evaluate if the specific measurement approach is the most appropriate (Petter et al., 2007).

The second study on measurement (Study 9) acts on measuring emotional mental models. In order to approach this issue it is empirically analyzed if there is a mismatch between the emotional mental model before and after visiting the virtual world Second Life (SL). Therefore, a two step approach was applied. First, a convenience sample was asked to indicate their emotional feeling (by stating one or two adjective/s) before and after a visitation of SL. Second, 25 encoders allocated the gathered terms to the basic emotional concepts by Izard (1977). In order to analyze results and to decide upon a clear-cut allocation of the terms to one basic emotional concept, a cut-off rule labeled 'hard margin procedure' was introduced. This straightforward procedure was confirmed by the Principal Component Analyses (PCA), which was calculated afterwards.

Generally, results show that the direction of the terms (positive, negative, or no clear direction) was rather clear. The most ambiguous terms were allocated to the emotional concept 'surprise'. Maybe the reason for this is that the basic emotion 'surprise' itself is already ambiguous, as some people might see surprises to be positive while other people do not like being surprised.

Concerning the research question if there is a difference between the mental model of unexperienced users before and after their visitation in SL the results expose significant negative and significant positive emotional shifts. Hence, there is a difference between the emotional mental model before and after a visitation in SL and there are differences for product and service presentations. However, there is lack of clarity concerning the direction because positive and negative shifts are exhibited.

Regarding emotional mental models it is shown, that even a very intuitive and straight-forward approach as the one used for Study 9 gives valuable insights. Compared to other methods such as for instance the Zaltman Metaphor-Elicitation Technique (ZMET; (Zaltman, 1997)) results might be less comprehensive, but comparing the efforts needed to detect insights into shifts of emotional mental models of one's target group the straight-forward approach used here is a reasonable alternative.

### 11.3 Methodological considerations

All surveys included in this project are conducted based on online surveys applying traditional survey research methods. Online survey research is appropriate for approaching an interdisciplinary topic like user-based website design in tourism which aims at better understanding needs of travelers using the Internet as a source of information. However, researchers doing online surveys have to be aware of advantages and disadvantages of this approach. Basically, the number of people using the Internet to search for travel information has been increasing steadily (Marcussen, 2009). Thus, more segments of the society can be reached this way swiftly and independent of geographic distances and time lags. Compared to offline surveys during data collection of an online survey, researchers can work parallel on other tasks because the users answer the questionnaire time without supervision and online software tools immediately save responses into a database. Therefore, the time consuming task of transcribing data from hardcopy questionnaires to an appropriate data analysis software is of no need anymore which minimizes entry errors (Llieva et al., 2002). Another big advantage is that people who would not be accessible by other channels can be reached in this way (Garton et al., 1999). Further, the Internet offers a mechanism to reach people who share interests, attitudes, beliefs, or values towards a certain issue. Even people who may not participate in a face-to-face survey due to reasons such as disabilities or unpopular views (e.g. political orientation) may express themselves openly. Nevertheless, online surveys have disadvantages too. Due to data security it might be rather difficult to get email addresses from a certain sub-population which makes the generation of a sampling frame challenging (Wright, 2005). Problems may arise because samples might not be representative. In order to overcome such problems Schaefer and Dillman (1998) recommend a multimode strategy i.e. collecting data through a combination of online and offline questionnaires.

Regarding methods applied to analyze gathered data diverse methods are used for the nine studies. Study 1 develops a taxonomy for travel blogs qualitatively. In doing so travel blogs have been collected systematically; content analysis is used to adapt existing blog genres to the needs of travel blogs. Based on a catalogue of criteria features offered on the sites are gathered and then used to describe the travel blog categories. Due to the fact that the sample size was rather low a Monte Carlo simulation is used to examine if there are differences regarding features and travel blog categories. Monte Carlo simulation allows for testing significant differences even with sparsely populated cells. The simulation relies on repeated random sampling and is chosen when it is not appropriate to calculate exact results using a deterministic method (Mooney, 1997).

Studies 2, 3, and 4 apply a structural equation model. However, the first one uses PLS-SEM while the second and third use CBSEM. Reasons for using the non-parametric PLS approach for the first study are not the small sample size but the goal of the study. The objective of Study 2 was to explore whether there are any linkages between motivational factors for reading blog entries and importance of website features/content or not. Due to the fact that no theory is available regarding this issue the study focuses on exploring a quite complex model. (The argument of using PLS only because of the small sample size may inherently imply insufficiencies in the design of the study; because it raises the question "If a bigger sample size would be needed why did one not collect more data?") In order to test for significance this study applied the bootstrapping method. The method applies a resampling technique with replacement to estimate t-values (Mooney and Duval, 1993). Before estimating a PLS-SEM based on raw data in Study 2 a PCA was run to check whether the concepts are

understood by the respondents as intended. PCA is employed as a dimension reduction technique producing orthogonal variables which explain a certain amount of variance (Dunteman, 1989). Study 3 and Study 4 do not apply PLS-SEM because theory concerning issues investigated is available, thus the aim is to test the theory. Therefore, the adequate analytical method is CBSEM. Sometimes it is argued that CBSEM cannot be used due to the prerequisite of metric data and specific data-distribution requirements. Normally distributed data is hardly available in social sciences. Thus, several software packages (e.g. Mplus) already provide diverse robust estimators to overcome this problem (Muthén and Muthén, 2007), which of course implies that data distribution needs to be inspected to decide upon the most adequate estimator. Hence, depending on the research question and/or setting the one or the other method should be preferred.

Data analysis in Study 5 included a two-step approach. First, a conjoint analysis is applied which is a very powerful method but rarely used in the field of tourism. The method was chosen to reveal preferences for certain hotel review categories. The design resulted in 64 hotel profiles which of course is unmanageable in a survey. Therefore, the orthogonal design function in SPSS is run. This procedure permits statistical testing of several attributes with few combinations of attribute levels. The orthogonal design generated eight hotel profiles which were included in the questionnaire. Second, based on individual importance values segments are exhibited by applying a vector quantization procedure namely the nonparametric method Topology-Representing-Network (Software used is TRN-32 by Mazanec (2008)) which is based on the neural gas algorithm by Martinetz et al. (1993). Martinetz et al. (1993) stipulate that the TRN algorithm is faster and achieves smaller distortion error than for instance k-means clustering. Cluster solutions' evaluation is assisted by the weighted Simple Structure Index (wSSI) and the uncertainty reduction index (Mazanec, 2001). The final step for the cluster analysis was profiling. In other words the final step was to describe the segments with variables not used in the cluster analysis (passive variables). Study 5 included one more method. In order to verify whether respondents' willingness to pay significantly differs from their reference price the nonparametric Wilcoxon signed-rank test was applied which is applicable for the case of two related samples.

Similar to Study 1, Study 6 also suffered from sparsely populated cells and therefore a Monte Carlo Simulation is run for testing cross tables exactly. Additionally, Study 6 calculated correlations using the coefficient Spearman's Rho due to ordinal scaled data. Further, a one-way ANOVA is applied to test for differences between received bookings and frequency of online monitoring UGC. Regarding Study 7 and Study 8 there are no further extensions. The only distinction regarding Study 9 is that another nonparametric test is applied viz. the McNemar test which is used with 2x2 tables and hence appropriate for dichotomous variables.

## 11.4 Managerial implications

The results of the nine studies comprised in this project also hold managerial implications regarding how to differentiate travel blogs, catering travelers' design needs, segmentation aspects, and measurement issues. More precisely, implications can be drawn about information presentation, website features, impact of information search behavior, and cognitive aspects like recommendations concerning the preferred mode of communication. In the following, implications for all four parts are given.

### 11.4.1 Defining and categorizing blogs

The proposed travel blog classification aides website designers and travelers as well as tourism managers: web designers can more precisely decide on which category they want to program for whom. Moreover, the overview of technical features offered by each category can be used to decide which applications should be provided for one category and which applications can be provided as a kind of supplement not usual for a specific category. If users search for travel blogs, search engines could narrow down the search results by having users select a category they actually want to base their information search on. Hence, users would get more accurate results depending on whether they are searching for rating sites, news, or any of the other categories. Knowing which categories of travel blogs exist, as well as detailed descriptions of these categories, assist managers in choosing the category most adequate for reaching a target group. Furthermore, it assists managers in deciding where to get information about a specific target group or about requirements of the market in general. Finally, managers can more easily decide which platforms should be monitored, for instance, hotels might be mainly interested in monitoring travel blog sites belonging to the category ‘community’ (Xiang and Gretzel, 2009).

### 11.4.2 Demand side: Insights into travelers’ design needs

As highlighted in various theoretical background sections discussing website design, there is a need to segment users and adapt the design according to their needs and goals.

The results of the study, which investigated the impact of motivational factors for reading blog entries on the importance of website features and thereby discriminated between the level of sensation seeking (Study 2) indicate that different needs to read blog entries can be satisfied by offering diverse website features. Therefore, providers need to profile their users not only based on topics but also based on other criteria, such as sensation seeking. Interaction with a website ignoring users’ goals may become a very frustrating experience. The designer’s approach could be to provide extensive functionality to a website based on the common characteristics of the users’ goals and their information requirements.

Talking about users’ information search behavior website designers have to take into account usefulness and content quality and if the user search is experiential or goal-directed. Hence, usefulness and content quality might be seen as basic requirements. Website designers have to find a way to entertain experiential searchers. The results of Study 3 show that experiential searchers are prepared to take a certain effort to learn how to use an entertaining website. Ease of use did not show a significant impact for experiential searchers, however, did for goal-directed information searchers. For this group ease of use significantly impacts on the perceived value of the website, while design elements do not. Due to the complexity of a journey different online searching types are prevalent. Some travelers may search analytically or holistically as well as in a goal oriented or exploratory way. It might increase satisfaction as well as loyalty if the website design matches traveler’s perceptual and cognitive systems. Hence, developing a worthwhile website it must be based on the intended

information search behavior of the target group.

Study 2 and Study 3 as well as previous studies (De Marsico and Levialdi, 2004; Sullivan, 1997) provide empirical evidence that website design needs to be tailored according to users' needs. However, based on the results of Study 4, a website also needs to be designed considering the preferred mode of communication of the target group. That means, website providers should present their information in a way capable of attracting people who are left-brain dominant learners and people who are right-brain dominant learners. In other words presentations have to be appealing for people who tend to have characteristics of text based learners (verbalizer) and for people who have characteristics of visual learners (visualizers). Verbalizers are content and usefulness focused, while visualizer prefer modes which primarily focus on the design as such.

Study 4 examined a rating platform and showed that people are prepared to pay more than they perceive fair and adequate if a hotel performs well in at least one review category. Hence, hotels can compensate for poor performance in other categories while increasing a consumer's willingness to pay. Travelers who search information on review platforms seem to be interested in specific aspects of consumer reviews. Therefore, platform providers first need to determine their target group in order to satisfy their users' requirements at best. For instance, users can search reviews matching their personal travel party composition such as couples, families etc. However, to assure user's satisfaction website designers must consider different types of travelers, because some people focus on reviews of the hotel's environment or atmosphere, others on the interior. Platform providers might offer different paths of information such as one path for the segment labeled 'environment'. This path could include reviews about the hotel in general and the hotel's equipment. The path for the group 'interior' might offer detailed reviews about the hotel room; about cleanliness, view, bathroom, and room maid. Then, the user can choose the path s/he prefers. The reviews should be linked accordingly thereby ensuring that information relevant to several groups are shown to all of them. At the same time, information which is not interesting for one user group should not be shown on the interface to avoid information overload.

All the studies stipulate that website providers need to take into account users' goals to decide on the features to offer while avoiding overload and increasing satisfaction with a website. Moreover, factors like the users' preferences (e.g. the way the information is presented and organized, how to access the information, and the navigation structure) and their preferred communication mode should be considered.

### **11.4.3 Supply side: Seizing opportunities of the Internet**

The general managerial implication that can be inferred from the two studies conducted is to seize the Internet opportunities for presenting information adequately and creatively to surprise and satisfy customers thereby gaining competitive advantages.

The first study for the supply side (Study 6) reveals that the majority of the hospitality industry is aware of the importance of online reputation, however, only few use social media for marketing purposes. Also, this channel is an alternative which allows for reaching communities with specific interest quite easily and, compared to traditional channels, is reasonably-priced and efficient. The



advantage of social media is that it is affordable not only by big international organizations but also by small and medium sized enterprises.

Further, managers should delegate the task of monitoring online reputation or gathering feedback to employees because it is time consuming and easy to carry out. Managers definitely should use more convenient online tools for searching the web instead of manually entering keywords into search engines for the purpose of monitoring e-reputation of the respective hotel (e.g. <http://www.brandseye.com/>; <http://www.trackur.com/>; <http://reputation.distilled.co.uk/>). Hotels not yet monitoring their reputation online are highly recommended to do so to avoid or react to criticism on time. It takes years if not decades to create a great brand, however, it can be destroyed within only a few hours by bloggers upset with a company. Negative examples as well as positive examples exist in all industry sectors such as the popular 'Kryptonite-case' (negative case; Zerfass and Boelter (2005)) or the 'Audi advertising campaign' (positive case; Parker (2005)). Dellarocas (2003) suggests that managers should continually monitor social media in order to obtain relevant information about their business and to get further information about needs, wishes, and evaluations about ones hotel. Hotels need to listen to customers and take advantage of information gathered and insights gained. As in the offline world where hotel employees ask guests to tell them if they are satisfied or if they have any wishes either face-to-face or via a questionnaire, hotels should ask travelers to rate their hotel online if they were satisfied. As empirically shown in Study 5 good performance ratings can compensate bad ones.

Negative UGC seen as a chance for further improving services or finding out more about customer needs and wishes. Actions to be considered if negative UGC appears need to be seen in the context. The matter of the number of negative reviews online or if reviews might be a fake must be taken into account. Generally, it can be said that active communication, the ability to accept criticism, and efficient handling of complaints positively contributes to a good customer relationship (Harrison-Walker, 2001).

The results of Study 7 showed that the tourism industry has not yet tapped the Internet and communication technology to the full potential. Particularly, 3D applications are sparsely used on websites. Despite the numerous advantages and possibilities of the Internet for marketing purposes it appears that both hotels and museums miss the opportunity to present themselves in a creative and innovative way. In doing so, companies pass up the chance to meet their customers' specialized needs such as preferences for different learning styles. The tourism industry is recommended to be aware of the potentials because an innovative and open-minded web presence could help differentiating and positioning.

#### **11.4.4 Measurement: Website performance and emotional mental models**

The proposed web performance index is a robust and parsimonious measurement instrument. This is an advantage over most reflective measures because often authors chose items for a reflective construct arbitrarily (DeVellis, 1991; Rossiter, 2002) decreasing accuracy as well as constraining comparability. When appropriate, the formative measure allows organizations to evaluate their websites and also assess the impact of website performance on perceived value and satisfaction. For companies, satisfied users are of importance since satisfaction leads to loyalty and to repeat visits of the website. This is particularly important for transaction sites or websites dependent on sponsors. However, it has

to be highlighted once more that the use of the appropriate measurement depending on a specific purpose is essential. Applying misspecified measures leads to estimation problems affecting inference in hypothesis testing. This can cause wrong management decisions (MacCallum and Browne, 1993). In the worst case funds are spent on improving aspects of a website not even contributing to website performance due to inaccurate conclusions based on misspecified models.

The index is of value to companies that: i) are interested in evaluating their website and are looking for an easy to use and parsimonious measurement instrument; ii) seek to assess their website performance continuously; iii) support companies that want to establish a benchmark and compare their website performance with competitors.

Study 9 measured emotional mental models and revealed that the emotional shift is inconclusive. There is an emotional shift in a positive and a negative direction. Nevertheless, the significant emotional differences point out the importance of emotional aspects of usability in online environments. Thus, developers should take into account these aspects too. A system which is able to change the emotional mental model of users in a positive direction has a competitive advantage over competitors to reach a critical mass of users and to establish a strong online community. Therefore, providers of online environments should precisely profile their target user groups and exhibit information about their mental model. Moreover, the study emphasized that suppliers in a virtual world have to be aware of different perceptions of product and service presentations. Accordingly, appearances have to be designed differently depending on the suppliers' aim, i.e. if they want to offer/sell services or products in a virtual world. Such information will help to offer a system where the designers' conceptual model is in accordance with the users' mental model.

As regards measurement of emotional mental models, the advantage of the present approach is that it is straight-forward and seems to work quite well. Compared to other methods such as the ZMET less expert knowledge and experience from an interviewers point of view is required.

## 11.5 Limitations and future research

Although the studies provide new insights into user-based website design, suppliers awareness of the potentialities the Internet offers, and measurement issues, there are still research avenues to pursue.

Referring to the proposed taxonomy for travel blogs the study should be seen as a starting point for further investigations. In a next step, a bigger sample should be used in order to evaluate the proposed travel blog categorization. Furthermore, a bigger sample is necessary to examine if certain categories provide the same kind of technical features as indicated by present results. Next, technical features which are most suitable in terms of discrimination between travel blog categories need to be identified. Then travel blog websites could be collected automatically and, based on the applications discriminating best between categories, an automatic categorization of travel blogs would be possible in the future.

Studies conducted for the demand side contribute to discussing requirements of different kind of users in the field of tourism. However, a netnographical approach (Kozinets, 1998) might be very useful to demonstrate if actual behavior matches the users' satisfaction expressed in the questionnaires used in the studies. This might be especially worthwhile for a sensitive topic such as the willingness to pay which was measured by a questionnaire and might not match actual behavior. Observational methods might uncover more truthful information (Kozinets, 2002, 2006; Langer and C., 2005).

One limitation pertains to the data available. While many website evaluation studies use survey data including statements on behavioral intention, follow up studies should consider actual behavior. Hence, limitations of intentional measures can be overcome. Moreover, it is a fact that the studies are based on convenience samples only. Also the sub-samples in some studies become rather small for multiple group analysis. Therefore, results only give a first hint but one cannot generalize the results for all users accessing travel related web 2.0 sites.

Because the perception of a website influences decision making (Bailay, 2005), and because the quality of a blog entry might be an influencing factor as well (Hennig-Thurau et al., 2002), other studies should be conducted taking these influences into account. Future research should investigate additional motivational factors and cognitive aspects of users. There is empirical evidence that future research has to focus on different drivers of value and satisfaction depending on search behaviors in order to increase loyalty. Moreover, regarding communication modes and learning styles, there might be groups who are a mixture of various modes or who prefer audio and kinesthetic cues. For those types an investigation on how watching and clicking as well as animations would be worthwhile. Future explorations of information sources should include other generally known antecedents of system success not analyzed in the present studies, such as believability, aesthetics, informativeness, or attitude. As regards Study 5 future studies should focus on exploring if users expect additional categories to complementing the already existing ones when searching for travel information on online review platforms (e.g. the quality of food and beverages, allergies, accessibility for disabled people). Thereby, further insights into website conceptualization will allow for adapting websites according to the users goals/needs. Hence, website providers will be able to more accurately match users' mental models and site architecture to increase the recommendation rate and repeat usage.

Only one website was included for each study conducted for the demand side. Therefore, future studies should compare aspects addressed across different websites. This would further our knowledge on the influences of website design and their effect on website satisfaction.

Study 6 presented results on how the hospitality industry deals with social media. Further and more sophisticated analysis is needed as well as comparisons between Austria, Germany, and Switzerland in order to get enhanced knowledge.

Study 7 only inspected 20 city tourism destinations concerning their use of 3D application. A further restriction is the fact that only websites of museums and hotels were included in the analysis. In doing so, other cultural or experiential places, which also offer 3D applications on their websites (such as churches, theaters, or restaurants) are excluded. In addition, limiting the key word search to specific words bears the risk that links not relevant are listed among the first results too. Some websites do not explicitly mention '3D' or '3D tour' in the text but just use an application of that kind. More research is needed concerning the ease of access to these applications. For instance, instead of relying on a search engine other techniques such as awards for innovative web design could be used as a proxy to locate websites that intensively use different kinds of information technology applications.

Despite the successful construction and cross-validation of an index for website performance the study also has some limitations that should be dealt with in future research. The study needs replication across different contexts using different samples. This conceptual framework needs to be tested with more transaction oriented websites which should lead to higher coefficients for system

availability and trust since respondents in a transaction setting are more vulnerable by system failure (Dickinger, 2010; Gefen et al., 2000). Furthermore, besides demonstrating face and content validity it is worthwhile to further validate the proposed index in different contexts. This would demonstrate the generalizability of the index across different settings. The model was developed and validated with data from one country. This raises the question whether the same set of items used for the formative index reflect the view of a more general worldwide audience. Replicating the study across different countries, replicating the entire process, including identification of items, would verify whether the same dimensions and the same items are relevant internationally.

The sample size of the last study is rather small and based on a convenience sample. Moreover, the study was conducted in the environment of only one possible online environment with the appearance of only one virtual hotel. Therefore, generalization of the results is not possible. Then, some encoders who allocated the adjectives to the basic emotions by Izard (1977) communicated that they would have appreciated other concepts, e.g. more positive emotional concepts. Izard (1977) provides three basic emotions, namely joy, interest, and surprise, whereby surprise might be seen as negative by some persons. Arnold (1960) suggests four positive basic emotions: Courage, desire, hope, and love. Therefore, another study should be conducted where test persons allocate the terms to the basic emotions by Arnold (1960) or to the basic emotions of other emotion theorists (Plutchik, 1980; Frijda, 1986). Moreover, study participants should be asked to determine whether they perceive a certain emotional concept to be positive or negative (e.g. surprise). Further, as the analysis of study 9 was done with very simple methods and a 'hard margin' approach, further analysis is needed using more sophisticated methods and results need to be compared with other methods for building emotional mental models. Ultimately, further research is needed to find out if the users' mental model is consistent with the designers' conceptual model.

As Fleming and Baume (2006) indicate, communication mode preferences are only stable in the medium term and not static. The same is true for the level of sensation seeking of a person (Huth-Bocks, 1996). Thus, a longitudinal study design would merit investigation. As regards emotional mental models it also should be examined if they change over time.

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# Appendices



## .1 Oral presentations at scientific meetings

Year	Presenter/s, paper, scientific meeting
2010	Stangl, Brigitte. Monitoring web 2.0 – User generated content in the hospitality industry. TTRA, San Antonio, Texas, 20.–22.06.
2010	Stangl, Brigitte. Are possibilities of the Internet tapped to the full potential? A systematic inventory of 3D applications in the tourism industry. EMAC, Copenhagen, Denmark, 01.–04.06.
2010	Stangl, Brigitte. How Communication Modes Determine Website Satisfaction. ENTER, Lugano, Switzerland, 10.02.–12.02.
2009	Stangl, Brigitte. Preliminary results: ‘Monitoring Web 2.0’ – User Generated Content in the Hospitality Industry: Preliminary Results. International Seminar on Tourism Marketing and the Social Web, Modul University Vienna, Austria, 04.09.
2009	Stangl, Brigitte, Dickinger, Astrid. Differences in Website Preferences Based on the Information Search Task: Findings from a Goal Directed and Exploratory Search Setting.. 38th European Marketing Academy Conference (38th EMAC), Nantes, France, 26.05.–29.05.
2009	Stangl, Brigitte, Schneider, Anke. 2009. Do emotional mental models before and after an effective visitation of a virtual world differ?. ENTER, Amsterdam, Niederlande, 28.01.–30.01.
2009	Stangl, Brigitte. Relationship between motivation and website features: Do adventure and relaxation seeking travelers differ? An exploratory study.. CAUTHE 2009, Fremantle, Australien, 10.02.–13.02.
2009	Stangl, Brigitte, Teichmann, Karin. What do consumers want from their e-fellows? Segmenting travelers based on their preference for hotel review categories. CAUTHE 2009, Fremantle, Australien, 10.02.–13.02.
2008	Stangl, Brigitte, Weismayer, Christian. Websites and Virtual Realities: a Useful Marketing Tool Combination? An Exploratory Investigation. Information and Communication Technologies in Tourism, ENTER, Innsbruck, Österreich, 22.01.–25.01.

**Table 1:** *Papers presented at scientific meetings*

## **.2 Presentation of the first pages of the original contributions**

As already mentioned in the footnote on page 9 the doctoral candidate intended to provide a uniform layout for all studies. Therefore, all articles are presented as chapters written in Latex. However, all studies included are largely based on the publications mentioned in the heading of each chapter. To demonstrate the original layout of each publication a screen shot of the original publications' first pages are provided on the following pages. Further, it once again it should be mentioned that the different length of articles is due to the guidelines of the various conferences and journals respectively and does not signal any weighting of the importance of the chapters.

### Taxonomy of travel blogs based on existing genres

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### ABSTRACTS AND KEYWORDS

This study investigates if the categorization by Herring et al. (2005), which is currently the most comprehensive categorization available for blogs, can be applied to travel blogs. Based on the systematic description of these categories the study at hand examines 68 travel blog sites. By applying a content analysis it is revealed that there is a need for adaptation. Although there is some degree of overlap categories called news, rating, guide and community are introduced in order to cater to the needs of travel blogs. Furthermore, a sample of travel blogs is assigned to the adapted categorization. Then, it is revealed that differences between travel blog categories exist based on technical features offered on the sites analysed. Finally, benefits of the derived categorization such as determining whether already published research based on specific blog sites is comparable or not and making search engines more accurate are discussed.

*Keywords:* Web 2.0, travel blogs, categorization, technical features

**RELATIONSHIP BETWEEN MOTIVATION AND WEBSITE  
FEATURES: DO ADVENTURE AND RELAXATION SEEKING  
TRAVELLERS DIFFER? AN EXPLORATORY STUDY**

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**ABSTRACT**

The study applies the partial least square method to assess the relationship between the importance of website features and motivational factors for reading blog entries, including the factors reduce risk, time saving, reliable information, authentic information, trip and preparation tools and fun & social contact. Results indicate that only a few motivational factors are essential antecedents for the perceived importance of certain website features. Moreover, it has been shown that the influence of motivational factors on the importance of website features differs between travellers who seek relaxation and those who seek adventure.

**Keywords:** Motivation for eWOM, sensation seeking, website features, tourism websites

**INTRODUCTION**

Blogs are personal online diaries and an increasing number of travellers are prepared to use blogs as a source of information, to post their own experiences and to communicate with other travellers or tourism suppliers. Figure 1 presents the Search Volume index for the keyword 'travel blog' and shows that the average amount of

1

### **e-Value: Differences between Goal-Directed and Experiential Information Search**

#### **Abstract:**

Travellers use the Internet as a source of information which has been subject of extensive research in the past. While the information search process has been investigated the influence of the actual search goal on the search behavior has been neglected. Travellers' interaction with a website may depend on whether they search for precise factual information or rather stimulus driven and unplanned. The paper shows how searchers who are browsing a website just for fun or search factual information differ in their perception. Theories from online service quality and technology acceptance are critically reflected and extended to gain insights into drivers of value. Multiple group analysis including responses from 445 travelers is applied. Results indicate that the main drivers for value and satisfaction for a goal directed search are content quality followed by usefulness. These effects are attenuated for the experiential search. Further, ease of use is only significant for the first group while enjoyment only exhibits effects for experiential searchers.

**Keywords:** goal directed vs. experiential information search, e-tourism, e-value, multiple group analysis.



## How Communication Modes Determine Website Satisfaction

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### Abstract

With the growing importance of the Internet as an information source and increased competition online, website designers have to take into account a variety of aspects to meet the target groups' preferences. The study at hand focuses on the influence of users' preferred communication modes to get an understanding of drivers of website satisfaction. The research model extends known theories from the technology acceptance literature and tests the influence of communication mode through the evaluation of a website. The model is tested employing structural equation modelling. Multiple group analysis exhibits differences between people who prefer text over visual based communication modes. The results reveal major differences between the two preferred communication modes. The main driver for verbalizers is content while the main driver of satisfaction for visualizers is design. These results indicate that website designers need to take the preferred mode of communication into account to facilitate online information search.

**Keywords:** communication mode, online search, website design, website satisfaction

### 1 Introduction

With travellers increasingly searching for information online, the importance of the Internet as an information source is well established (Beldona 2005; Xiang and Gretzel 2009). Accordingly, the Internet has been the subject of research with regards to acceptance, usage and satisfaction for years. Some streams of research focus on website evaluation, i.e. the satisfaction with a website (Barnes and Vidgen 2002; Parasuraman, Zeithaml and Malhotra 2005), information system success (DeLone and McLean 1992), persuasiveness of a website (Kim and Fesenmaier 2009) and acceptance of a website (Davis, Bagozzi and R. 1989; Venkatesh, Morris, Davis and Davis 2003; Wixom and Todd 2005). All of these projects have the aim to understand what makes people use information technology.

When it comes to further investigating the user, literature review reveals that users' characteristics also become relevant. Some studies focus on demographic characteristics such as age and gender (Venkatesh, Morris et al. 2003), others on past Internet experience, domain specific innovativeness (Agarwal and Prasad 1998), intrinsic motivation (Venkatesh 2000), voluntariness of use (Venkatesh, Morris et al. 2003), knowledge about the topic (Marchionini 1995), or cultural differences (Chau, Cole, Massey, Montoya-Weiss and O'Keefe 2002).

What do consumers want from their e-fellows? 1

**WHAT DO CONSUMERS WANT FROM THEIR E-FELLOWS?  
SEGMENTING TRAVELLERS BASED ON THEIR PREFERENCE FOR  
HOTEL REVIEW CATEGORIES**

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**ABSTRACT**

This study investigates the influence of hotel guest reviews on customer hotel preferences in the context of booking hotels online applying a conjoint design. The empirical research shows that the subjects' willingness to pay is significantly higher than their reference price for hotels. In addition to that, the results of this study indicate that reviews on the hotel in general and on the hotel's rooms are perceived the most useful for consumers reading reviews. Applying a cluster analysis, we identify seven different segments. The findings indicate that users of consumer reviews do not belong to only one homogeneous group but perceive the importance of review categories differently. The paper also provides managerial implications.

**Keywords:** Willingness to pay, electronic word of mouth (eWOM), web 2.0, hotel review

### Monitoring Web 2.0 - User Generated Content in the Hospitality Industry

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#### ABSTRACT

*Increased importance of user generated content (UGC) forces hotel managers to place greater emphasis on monitoring their online reputation. The study at hand investigates the hospitality industry's attitude towards UGC as well as if and how the industry monitors online reviews of tourists. Data collected from an online survey conducted in German-speaking countries in Europe (Austria, Germany and Switzerland) are analyzed. The analysis of 693 completed questionnaires revealed that managers in all three countries assess evaluating UGC as highly important. This is also reflected in a high percentage of managers monitoring their hotels' reputation themselves and by not delegating the task to employees. Further, managers have a rather positive attitude towards negative reviews. However, only a minority uses social media for advertising purposes. Further results are presented and implications are discussed.*

**Keywords:** *hospitality industry, user generated content, monitoring.*

#### INTRODUCTION

Social media such as blogs, media sharing sites, social contact sites, or rating platforms have fundamentally changed the usage of the Internet as a source of information as well as a channel for distributing information (Buhalis & Law, 2008; Pan, et al., 2007; Xiang & Gretzel, 2009). Social media sites enable users to submit their opinions regarding other members of a community but also regarding various topics such as experiences, services, products, or organizations (Dellarocas, 2003). Research has been investigating the influence of this kind of interpersonal communication on consumers' decision-making processes and its impact on enterprises for many years (Beatty & Smith, 1987; Kiel & A., 1981). From a consumer's perspective researchers put a lot of effort into understanding what motivates users to contribute to social media (Nardi, Schiano, & Gumbrecht, 2004; Stoeckl, Rohrmeier, & Hess, 2006), why people use user generated content (UGC) to search for information (Bailay, 2005; Goldsmith & Horowitz, 2006; Gretzel, Yoo, & M., 2007), what affects online buying decisions (Wen, 2008), or what website design is most advantageous in order to fulfil users' requirements (Engele, Stangl, & Teichmann, 2009; Kansa & Wilde, 2008). From a supply side perspective issues like the influence of UGC on destination marketing (Carson, 2008; Schmallegger & Carson, 2008) and on the hospitality industry (O'Conner, Höpken, & Gretzel, 2008; Ye, Law, & Gu, 2009) are examined.

Social media is allowing for online feedback and thus is providing users with the opportunity to publicize experiences with enterprises (Dellarocas, 2003). Since users trust in their e-fellows' opinion, behavior of a whole community towards a specific enterprise may be

## Are possibilities of the Internet tapped to the full potential? A systematic inventory of 3D applications in the tourism industry

### Abstract

The Internet allows for the presentation of services and products in various creative ways. The present study investigates if the tourism industry taps the possibilities of the Internet to its full potential. By applying a content analysis, the websites of hotels, as well as museums of 20 different European cities are examined. Results show that differences exist between cities, which account for the most overnight stays, and cities which account for the smallest number of overnight stays in Europe. Furthermore, differences between hotel and museum websites are revealed concerning the use of 3D applications. The paper provides managerial implications.

**Keywords:** hospitality industry, museum, 3D website-applications

Track 20: Tourism Marketing

### 1. Introduction

Tourism services cannot be tested before consumption and usually they are bought away from the place where they are consumed, as well as ahead of time. Consequently, the tourism industry highly relies on the presentation and description of services offered (Cheong, 1995). With the continuous development of the Internet, the opportunities for product and service presentations have increased on the one hand (Quebeck, 1999). On the other hand, consumers have become more liberated and their demands have become more sophisticated for online information sources (Cheong, 1995). Users expect websites that offer more than just basic information and simple applications respectively (Perfetti, 2001). Users are looking for websites that offer some additional benefit (Raskin, 1999). Hence, websites need to provide interesting applications in order to entertain users without reducing usability.

Nowadays, many tourism related enterprises already show their location on a 2D map and allow users to contribute to the content on social media sites, as well as on corporate websites (Mitsche, Reino, Knox, & Bauernfeind, 2008). Alpcan et al. (2007) argue that user generated content is only an intermediate step towards the 3D Internet. In former times, high computational costs, data transfer costs, and network bandwidth have been bottlenecks for the usage of multimedia and 3D applications. However, this argument lost ground (Rakkolainen & Vainio, 2001). The advantages of 3D applications are manifold. They facilitate the marketing of services, enhance interaction & communication and boost business potentialities such as virtually “trying before buying” and “interactive shopping”. Due to advances in technology, it is possible to mimic common 3D information architecture. Hence, virtual 3D online experiences accommodate users with their

**Figure 7:** EMAC 2010: Are possibilities of the Internet tapped to the full potential? A systematic inventory of 3D applications in the tourism industry (Chapter 8)

### **Tourism Website Performance: A Formative Measurement Approach**

#### **Abstract**

Increased use of the Internet to access information and as a booking tool has greatly impacted the tourism industry while simultaneously calling attention to research on website performance and evaluation. However, almost all multi-item measures being used to evaluate different aspects of website performance are conceptualized as reflective models. After a thorough review of the literature and an in-depth discussion on measurement, a theory-based alternative, formative approach for website performance is suggested. The scope of the construct comprises eight dimensions: system availability, ease of use, usefulness, navigational challenge, website design, content quality, trust, and enjoyment. In order to test the model empirically, it is linked to outcome measures commonly examined in this context (satisfaction, value and loyalty). Information from 445 questionnaires completed by travelers show that the formative index works well. Findings are confirmed through cross-validation. The aim of the study is to develop a sound measure which allows for shorter questionnaires as well as easy comparisons across websites.

**Keywords:** website evaluation, formative measurement, reflective measurement, structural equation modelling.

## EMOTIONAL MENTAL MODELS

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### Synonyms

Emotional conceptual model; emotion scheme; personal scheme

### Definition

Emotional mental models are one part of people's mental models intrinsically *tied to cognitive models*. Mental models stipulate that people have certain expectations/thoughts of how things should look like/work and connect certain emotions with this. Mental models are a *framework* in the brain for *new learning situations* which are based on experiences/meanings and which are influenced by a persons' personality and the environment. Thereby, *emotions and feelings* are considered as emotional mental models while thoughts and believes are accounted for by cognitive models. In learning situations new information is compared with existing content (believes and emotions) and structures, then; an adapted cognitive and emotional mental model is generated. Human beings' feelings, reactions, and *behavior* towards stimuli (person/situation/product/brand/service) are guided by emotional mental models.

### Theoretical Background

Mental models (Norman, 1988) have been examined in various fields such as management, marketing, information systems, consumer behavior, psychology, education or neuroscience. However, most scientists focus on cognitive models only, neglecting different underlying meanings of mental models such as attitudes, emotions and feelings, symbols, actions, goals, values, images, memories, visions, or representations of sensory experience (touch, taste, and smell). Only very little research explicitly takes into account cognitive and emotional mental models jointly. Though, there is empirical evidence that cognitive and emotional mental models are not separable because both, structure and content are depending on each other and are influencing behaviors (Christensen & Olson, 2002). Structure is about how information is organized in memory while content refers to personal meanings comprising thoughts/beliefs and emotions/feelings. LeDoux (1996) points out, that there is only one conscious system which can be filled with trivial facts or with profound emotions. The basics for construction of emotions (nervous system, functionality of mental and physical processes) is determined in our genes but how we actually act, think, and feel depends on aspects learned, experiences gained, and meanings attached. Unconsciously emotions of others are imitated and

**Figure 9:** *Encyclopedia of the Sciences of Learning: Emotional mental models (Chapter 10)*

## Do Emotional Mental Models Before and After an Effective Visitation of a Virtual World Differ?

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### Abstract

The aim of the study is to find out the mental model of people concerning the virtual world Second Life. The present study bases the mental model on emotional feelings of people who think of service and product presentations in Second Life. In a first step the emotional mental model of test persons without prior knowledge of Second Life is uncovered. In a second step people effectively visited a hotel's appearance in the virtual world. After, they were asked again to tell their emotions concerning a service and product presentation in such an environment. Then, the gathered terms were allocated to the basic emotions proposed by Izard (1977) by 25 encoders. Results show, that there are differences between the emotional mental model before and after the visitation of the virtual world. Thus, indicating that expectations are not consistent with the actual experience in SL.

**Keywords:** Web 3.0, virtual worlds, mental model, emotions, Second Life (SL), Tourism

### 1 Introduction

Due to advances in technology it is possible to combine different activities in one single package which have been used separately before. Among those are voice communications, entertainment, information, and transaction. Virtual worlds are an ideal medium to offer such activities.

The Search Volume index of Google Trends shows that since 2006 people have increasingly been searching for the keyword "virtual worlds". The data is based on the average search traffic for the used term from 2004, January to present.



**Fig. 1.** Search Volume index for the keyword "virtual worlds"  
Source: Google Trends (retrieved: 2008, September 03)